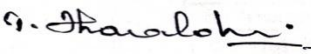
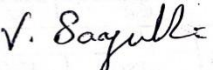
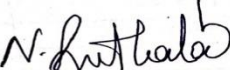
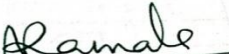


SRI SARADA COLLEGE FOR WOMEN
(An Autonomous Institution)
 (Re-Accredited with “A” Grade by NAAC)
 College included under section 2(f) & 12 (B) of UGC.
 (Affiliated to Manonmaniam Sundaranar University, Tirunelveli)
 (A Branch of Sri Ramakrishna Tapovanam, Tirupparaithurai.)
 Sarada Nagar, Ariyakulam, Maharajanagar (PO),
TIRUNELVELI - 627011. TAMILNADU – INDIA.

Degree UG Subject: Part – I TAMIL
 Programme structure (wef 2019 – 2022)
Stream A –B.A., (English and Economics) B.Sc., (Mathematics, Physics and Chemistry)
Stream B –B.Sc., (Computer Science, Information Technology and Computer
 Applications) B.Com., B.Com(CS),and BBA

Semester	Part	Category	Course code	Course Title	Hours/week	Credits	Page
1	I	Language	20P1TA1	இக்காலஇலக்கியம்	6	4	2
2	I	Language	19P1TA2	பக்தி இலக்கியம்	6	4	3
2	I	Language	19PITB2	பன்னோக்கு இலக்கியம்	6	4	4
3	I	Language	19P1TA3	காப்பிய இலக்கியம்	6	4	5
4	I	Language	19P1TA4	பண்டைஇலக்கியம்	6	4	6
3	IV	NME	19NTA31	பழகுதமிழ்தாள் – I	2	2	7
3	IV	NME	19NTB31	தீந்தமிழ்தாள் – I	2	2	8
4	IV	NME	19NTA41	பழகுதமிழ்தாள் – II	2	2	9
4	IV	NME	19NTB41	தீந்தமிழ்தாள்–II	2	2	10

 HOD Dr. T. Dhanalakshmi	 Join Dean Dr. V. Sangeetha	 Dean Dr. N. Lavanya	 Principal Dr. N. Kamala

SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 627011

SEMESTER I

Programme: UG	Subject: Part – I – Tamil	Stream A
Course code: 19U1TA01	Course Title: இக்கால இலக்கியம்	
Category: Language	Credits: 4	

பயன்கள் : (Outcome)

1. கவிதைப் படைப்பாற்றல், பேச்சாற்றல்.
2. போட்டித் தேர்வுகளில் உயர்ந்த மதிப்பெண்கள்.
3. பத்திரிக்கை எழுத்தாளர், வானொலி மற்றும் தொலைக்காட்சி நிலைய அறிவிப்பாளர்பணிக்கு வாய்ப்பு.

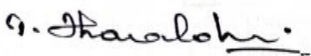
அலகு	விரிவான பாடத் திட்டம்		மணிக் கூறு
1	செய்யுள்	1. பரம்பொருள் வாழ்த்து, 2.நாட்டியல் நாட்டுவோம், 3. பெண்களின் உரிமைகள், 4. கைத்தொழில், 5. கனிச்சாறு , 6. ஒன்று எங்கள் ஜாதியே 7. தேசப்பிதாவுக்கு ஒரு தெருப்பாடகனின் அஞ்சலி. 8. அப்துல்கலாமின் வீணை 9. ஒரு காலத்தில் ஒரு குளம் இருந்தது, 10. கங்கை இங்கே ஓட வேண்டும் 11. வெற்றிமுகம், 12. கண்டும் காணாமல் , 13. புன்னகையின் வன்முறை 14. ஆசைப்படு, 15. முறையா?, 16. ஹைக்கூ கவிதைகள் 17. நாட்டார் கவிதைகள்	12
2	இலக்கணம்	முதல்எழுத்துகள், சார்பெழுத்து, சுட்டு,வினாஎழுத்துகள், மொழி முதல் எழுத்துகள், மொழி இறுதி எழுத்துகள், வலிமிகும்இடங்கள், வலிமிகாஇடங்கள்	12
3	உரைநடை	1. வாழ்க்கைக்கு வழிகாட்டும் வள்ளுவம் 2. கம்பராமாயணத்தில் உறவுகள் 3. திருவாசகத்தில் மகளிர் விளையாட்டுகள் 4. அறநூல்களில் சூழலியல் சிந்தனைகள் 5. கல்வியும் சமுதாய நலனும் 6. அற இலக்கியங்களில் மேலாண்மை 7. புதுக்கவிதைகளில் விழிப்புணர்வுச் சிந்தனைகள் 8. பதினெண்கீழ்க்கணக்கு நூல்களில் மதிப்புக் கல்வி	12
4	சிறுகதை	பொன்னகரம், ராஜா வந்திருக்கிறார், விடியுமா, ஒரே நண்பன், சேதாரம் ஆறு, வசக்குதல், ஐஸ் பிரியாணி	12
5	இலக்கிய வரலாறு	1. புதுக்கவிதையின்தோற்றமும்வளர்ச்சியும், 2. சிறுகதையின்தோற்றமும்வளர்ச்சியும் 3. புதினத்தின் தோற்றமும் வளர்ச்சியும் , 4. நாடகத்தின் தோற்றமும் வளர்ச்சியும் 5. தகவல் தொடர்புச் சாதனங்களும் தமிழ் வளர்ச்சியும், 6. நாட்டார் கவிதைகள்	12

பாட நூல்கள் :

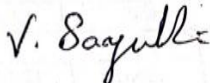
வ.எண்	புத்தகத்தின் பெயர்	ஆசிரியர்	பதிப்பு,ஆண்டு	பதிப்பகம்
1	செய்யுள்	பல்கலைக்கழகத் தொகுப்பு	2018 (1)	
2	கண்ணா தமிழ் இலக்கணம்	முனைவர்.ச.பர்வத கிருஷ்ணம்மாள்	2017	பாவை பப்ளிகேஷன்ஸ்,சென்னை
3	உரைநடைப் பூங்கா	தொகுப்பாசிரியர் முனைவர் இரா. காமராசு	2018	புறிவுப்பதிப்பம், சென்னை
4	கதைக் களஞ்சியம்	தொகுப்பாசிரியர் முனைவர் சு. வேணுகோபால்	-	ராமரை பப்ளிகேஷன்ஸ்(பி)லிட்., சென்னை
5	இலக்கிய வரலாறு	சு. ஆனந்தன்	2003	ண்மணிபதிப்பகம், திருச்சி

மேற்பார்வை நூல்கள் :

வ.எண்	புத்தகத்தின் பெயர்	ஆசிரியர்	பதிப்பு,ஆண்டு	பதிப்பகம்
1	இலக்கிய வரலாறு	தொகுப்பாசிரியர் முனைவர் மு. சுபாஷ் சந்திரபோஸ்	2003	யூசெஞ்சரி பக்ஹவுஸ்,சென்னை
2	வகைமை நோக்கில் தமிழ்இலக்கிய வரலாறு	முனைவர்.பாக்கியமேரி	2003	கண்மணிபதிப்பகம், திருச்சி
3	நன்னூல்	பவணந்தி முனிவர்	2007 (1)	சாரதாபதிப்பகம்,சென்னை.



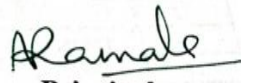
HOD
Dr. T. Dhanalakshmi



Join Dean
Dr. V. Sangeetha



Dean
Dr. N. Lavanya



Principal
Dr. N. Kamala

SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011

SEMESTER IV

Programme: UG 2 Yrs. Course	Subject: Part – I – Tamil	Stream A
Course code: 19P1TA2	Course Title : பக்தி இலக்கியம்	
Category: Language	Credits: 4	

பயன்கள்:

1. பேச்சாற்றல், படைப்பாற்றல்
2. போட்டித் தேர்வுகளில் உயர்ந்த மதிப்பெண்கள்.
3. தமிழர்களின் வாழ்வியலை – வழிபாட்டு முறைகளை அறிந்து கொள்ளுதல்

பாட நூல்கள்:

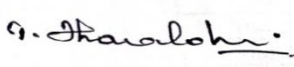
அலகு	பாடப்பிரிவு	பாடத் திட்டம்	மணிக் கூறு
1	செய்யுளும் இலக்கிய வரலாறும் (பக்தி இலக்கியம்) (செய்யுளோடு சம்பந்தப்பட்ட இலக்கிய வரலாற்றை இணைத்து அறியச் செய்தல்)	திருஞான சம்பந்தர் தேவாரம் (தோடுடைய செவியன் 11), திருநாவுக்கரசர் தேவாரம் (கூற்றாயினவாறு 10), மாணிக்கவாசகர் (திருச்சாழல் 10), சுந்தரர் தேவாரம் (10), திருமூலர் (உடம்பார் அழியின், உடம்பினை முன்னம், பொன்னை மறைத்தது, மரத்தை மறைத்தது 4), பெரியாழ்வார் திருமொழி (அம்புலியை அழைத்தல் 4), ஆண்டாள் (திருப்பாவை 2), குலசேகர ஆழ்வார் (4), இரட்சணிய மனோகரம் (5), குணங்குடி மஸ்தான் சாகிபு பாடல். இலக்கிய வரலாறு – பன்னிரு திருமுறைகள் - பன்னிரு ஆழ்வார்கள் - கிறித்துவம் தமிழுக்குச் செய்த தொண்டு - இசுலாம் தமிழுக்குச் செய்த தொண்டு - இசுலாம் தமிழுக்குச் செய்த தொண்டு.	12
2	சொல் இலக்கணம்	சொல்லின் இலக்கணம் - சொல் வகைகள் பெயர்ச்சொல் (பொருள், இடம், காலம், சினை, குணம் தொழில்), வினைச்சொல் - வகைகள் (முற்றுவினை – பெயரெச்சம், வினையெச்சம்), இடைச்சொல் (ஏகார இடைச்சொல், ஓகார இடைச்சொல், உம்மை இடைச்சொல்), உரிச்சொல், மொழிப்பயிற்சி (எழுத்து வேறுபாடுகள்) – கடிதங்கள் -வேண்டுதல், முறையீடு, விண்ணப்பம் - படிவங்கள் நிரப்புதல்	12
3	முத்துச் சிதறல் (வாழ்வியல் கட்டுரைகள்)	கர்ணனும் கும்பகர்ணனும் - கம்பனின் பெண்ணியச் சிந்தனைகள் - பொங்கல் விழா – சித்தர்கள் பார்வையில் யோக நெறி - இலக்கியம் எது? – ஆற்றுப்படை நூல்களில் வாழ்வியல் - பாரதியின் சமயம்	12
4	துணைப்பாடம்	வ.உ.சி. வாழ்வும் பணியும்	12
5	படைப்பு உருவாக்கம்	செய்யுள், இலக்கிய வரலாறு, உரைநடை மற்றும் துணைப்பாடம் ஆகியவற்றில் இருந்து ஆக்கப்பூர்வ படைப்புகளை உருவாக்கல். (செய்யுள் - நாடகம் (அ) சிறுகதை – துணைப்பாடம், உரைநடை, கவிதை (அ) நாடகம்)	12

பாடநூல்கள்:

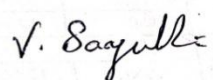
வ.எண்	புத்தகத்தின் பெயர்	ஆசிரியர்	பதிப்பு,ஆண்டு	பதிப்பகம்
1	பக்தி இலக்கியம்	தொகுப்பு: தமிழ்த்துறை	2018 (1)	நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை
2	தமிழ் இலக்கணம் (எழுத்தும், சொல்லும்)	முனைவர் ச. பர்வத கிருஷ்ணம்மாள்	2017	பாவை பப்ளிகேஷன், சென்னை
3	முத்துச்சிதறல் (வாழ்வியல் கட்டுரைகள்)	தொகுப்பு: தமிழ்த்துறை	2018	நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை
4	வ.உ.சி. வாழ்வும் பணியும்	ஆசிரியர் குழு	2006 (3)	அகல்யா பப்ளிகேஷன், திருநெல்வேலி

மேற்பார்வை நூல்கள்:

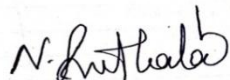
வ.எண்		புத்தகத்தின் பெயர்	பதிப்பு,ஆண்டு	பதிப்பகம்
1	இலக்கிய வரலாறு	சு. ஆனந்தன்	2003	கண்மணி பதிப்பகம், சென்னை
2	இலக்கிய வரலாறு	பேரா. ஜெ. ஸ்ரீசந்திரன்	2002	வர்த்தமானன் பதிப்பகம், சென்னை
3	நன்னூல்	பவணந்தி முனிவர்	1993	சைவசித்தாந்த நூற்பதிப்புக் கழகம், சென்னை



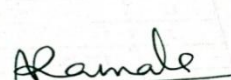
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Dr. N. Kamala

SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011
SEMESTER IV

Programme: UG 2 Yrs. Course	Course Title : பன்னோக்குஇலக்கியம்	Stream B
Course code: 19P1TB2	Credits: 4	
Category: Language		

பயன்கள்:

1. வாழ்வியலை அறிந்து கொள்ளுதல், பேச்சாற்றல்
2. போட்டித் தேர்வுகளில் உயர்ந்த மதிப்பெண்கள்.
3. பத்திரிக்கை எழுத்தாளர், வானொலி மற்றும் தொலைக்காட்சி நிலைய அறிவிப்பாளர்.

பாட நூல்கள்:

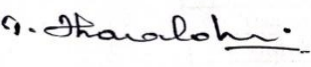
அலகு	பாடப்பிரிவு	பாடத் திட்டம்	மணிக் கூறு
1	செய்யுள்	1) திருஞான சம்பந்தர் தேவாரம் (தோடுடைய செவியன், 2) திருநாவுக்கரசர் தேவாரம் (கூற்றாயினவாறு 3) திருமூலர் (உடம்பார் அழியின், உடம்பினை முன்னம், பொன்னை மறைத்தது, மரத்தை மறைத்தது, 4) பெரியாழ்வார் திருமொழி (அம்புலியை அழைத்தல் 5) மீனாட்சியம்மை பிள்ளைத்தமிழ் (2) 6) திருக்குறள் (வான்சிறப்பு) 7) நாலடியார் (மேன்மக்கள் 8) அகநானூறு (4,274) 9.புறநானூறு (188,189,190,214)., 10. சிலப்பதிகாரம் (மங்கல வாழ்த்து)11 சிறுபாணாற்றுப்படை (50)	12
2	சொல்லின் இலக்கணம்	சொல்லின் இலக்கணம் - சொல் வகைகள் 1. பெயர்ச்சொல் (பொருள், இடம், காலம், சினை, குணம், தொழில்), 2. வினைச்சொல் - வகைகள் (முற்றுவினை – பெயரெச்சம், வினையெச்சம்), 3. இடைச்சொல் (ஏகார இடைச்சொல், ஓகார இடைச்சொல், உம்மை இடைச்சொல்), 4. உரிச்சொல், 5. மொழிப்பயிற்சி (எழுத்து வேறுபாடுகள்) – கடிதங்கள் -வேண்டுதல், முறையீடு, விண்ணப்பம் - படிவங்கள் நிரப்புதல்	12
3	முத்துச் சிதறல் (வாழ்வியல் கட்டுரைகள்)	கர்ணனும் கும்பகர்ணனும் - கம்பனின் பெண்ணியச் சிந்தனைகள் - பொங்கல் விழா – சித்தர்கள் பார்வையில் யோக நெறி - இலக்கியம் எது? – ஆற்றுப்படை நூல்களில் வாழ்வியல் - பாரதியின் சமயம்	12
4	துணைப்பாடம்	வ.உ.சி. வாழ்வும் பணியும்	12
5	இலக்கிய வரலாறு	பன்னிரு திருமுறைகள் - பன்னிரு ஆழ்வார்கள் - சிற்றிலக்கியங்கள் (பிள்ளைத்தமிழ், பரணி, தூது) – ஐம்பெருங்காப்பியங்கள் - பதினெண்கீழ்க்கணக்கில் அறநூல்கள் - சங்க இலக்கியங்கள் - சங்க இலக்கியத்தின் சிறப்பியல்புகள்	12

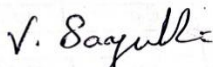
பாடநூல்கள்:

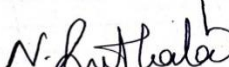
வ.எண்	புத்தகத்தின் பெயர்	ஆசிரியர்	பதிப்பு,ஆண்டு	பதிப்பகம்
1	பன்னோக்குஇலக்கியம்	தொகுப்பு: தமிழ்த்துறை	2018 (1)	நியூ செஞ்சரி புக் ஹவுஸ், சென்னை
2	தமிழ் இலக்கணம் (எழுத்தும், சொல்லும்)	முனைவர் ச. பர்வத கிருஷ்ணம்மாள்	2017	பாவை பப்ளிகேஷன், சென்னை
3	முத்துச்சிதறல் (வாழ்வியல் கட்டுரைகள்)	தொகுப்பு: தமிழ்த்துறை	2018	நியூ செஞ்சரி புக் ஹவுஸ், சென்னை
4	வ.உ.சி. வாழ்வும் பணியும்	ஆசிரியர் குழு	2006 (3)	அகல்யா பப்ளிகேஷன், திருநெல்வேலி

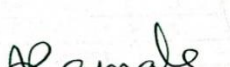
மேற்பார்வை நூல்கள்

வ.எண்		ஆசிரியர்	பதிப்பு,ஆண்டு	பதிப்பகம்
1	இலக்கிய வரலாறு	சு. ஆனந்தன்	2003	கண்மணி பதிப்பகம், சென்னை
2	இலக்கிய வரலாறு	பேரா. ஜெ. ஸ்ரீசந்திரன்	2002	வர்த்தமானன் பதிப்பகம், சென்னை
3	நன்னூல்	பவணந்தி முனிவர்	1993	சைவசித்தாந்த நூற்பதிப்புக் கழகம், சென்னை


HOD
Dr. T. Dhanalakshmi


Join Dean
Dr. V. Sangeetha


Dean
Dr. N. Lavanya


Principal
Dr. N. Kamala

SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI-627011
SEMESTER III

Programme: UG2 Yrs Course	Subject: Part – I – Tamil	Stream A
Course code: 19P1TA3	Course Title: காப்பிய இலக்கியம்	
Category: Language	Credits:4	

நோக்கம் :

1. காப்பிய இலக்கியத் தோற்றம், வளர்ச்சி குறித்து அறியத் தருதல்.
2. தமிழ் இலக்கியங்களில் காப்பியம் பெற்றுள்ள சிறப்பிடத்தை எடுத்துரைத்தல்.
3. சமூகம், சமயம், வரலாறு ஆகியவற்றை மீட்டுருவாக்க காப்பியம் துணை புரிவதை எடுத்துரைத்தல்.

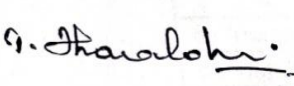
புலகு	பாடப்பிரிவு	விரிவானபாடத்திட்டம்	மணிக்கூறு	விளைவுகள்
1	செய்யுள்	1.சிலப்பதிகாரம் – கனாத்திறமுரைத்தகாதை (1-83அடிகள்), 2. மணிமேகலை – பாத்திரம் பெற்ற காதை (1-81 அடிகள்), 3. கம்பராமாயணம்- கிட்கிந்தா காண்டம் - துந்துபிப் படலம் (15பாடல்கள்), பெரியபுராணம்- இளையான்குடிமாற நாயனார் புராணம் (27 பாடல்கள்) 4. சீறாப்புராணம்- புலிவசனித்தபடலம் (14பாடல்கள்) 5. இரட்சணிய யாத்திரிகம் – குரு தரிசனப்படலம் (15 பாடல்கள்) 6. மனோன்மனியம்- தமிழ்த்தெய்வவணக்கம்	30	மாணவிகளால் : அகாப்பியமாந்தர்களின் வாழ்வியலை. அறிந்து கொண்டு தங்கள் வாழ்வியலைமேம்படுத்திக் கொள்ள முடியும். ஆ போட்டித் தேர்வுகளில் சிறந்த. மதிப்பெண்கள் பெறமுடியும்.
2	யாப்பு,அணி இலக்கணம்	யாப்புஉறுப்புகள் -எழுத்து, அசை,சீர், தளை, அடி, தொடை, பாவகைகள் – வெண்பா ஆசிரியப்பா பொதுஇலக்கணம்-வகைமை ,சான்று,அணிஇலக்கணம் - உவமையணி,உருவகஅணி,புகழாப்புகழ்ச்சியணி, பின்வருநிலையணிஅறிமுகம் ,(வகைகள் நீங்கலாக)மொழிப்பயிற்சி (ஓரெழுத்து ஒருமொழி – மரபுச் சொற்கள் – பிறமொழிச் சொற்கள் நீக்குதல்)	15	அ செய்யுளின்அமைப்பினை அறிந்து. கொள்ளமுடியும். ஆ மரபுக்கவிதை எழுதும் ஆற்றலை. வளர்க்க முடியும். இபாக்களின் நயங்களை அறிந்து . கொள்ளமுடியும்.
3	உரைநடை	ரா(தேர்ந்தெடுக்கப்பட்ட கட்டுரைகள்)சேதுபிள்ளையின் காப்பியப் பார்வை.பி. சிலம்பின் காலம் – கண்ணகி கூத்து – அமுதசுரபி –மாதரும்மலர்ப் பொய்கையும் – காளத்திவேடனும் கங்கை வேடனும் –நளவெண்பா வாழ்க்கையும் வைராக்கியமும் – இரும்பையும் தமிழ்மலையே – தமிழ்த்தாய் வாழ்த்து	15	அ உரைநடையின் மொழிநடையை . அறிந்து கொள்ள முடியும் . ஆ படைப்புத் திறனை வளர்த்துக் கொள்ள முடியும்.
4	துணைப் பாடம் – நாவல்	ராஜம்கிருஷ்ணன் – கரிப்பு மணிகள்	15	அ வாசிப்புத் திறனை . வளர்த்துக்கொள்ளமுடியும் ஆ உப்பளத்தொழிலாளர்களின் . வாழ்வியலை அறிந்து கொள் முடியும்
5	இலக்கியவரலாறு	1. ஐம்பெருங்காப்பியங்கள் சிலப்பதிகாரம்,மணிமேகலை,சீவகசிந்தாமணி,வளையாபதி,குண்டலகேசி , ஐஞ்சிறுகாப்பியங்கள்-குளாமணி,நீலகேசி, உதயணகுமாரகாவியம், யசோதரகாவியம்,நாககுமாரகாவியம் , சிறுநிலக்கியங்கள்-பிள்ளைத்தமிழ், பரணி,உலா,குறவஞ்சி,பள்ளு	15	அ காப்பிய வளத்தை அறிந்து . கொள்ள முடியும். ஆ நால்வகை உறுதிப்பொருட்களை . வாழ்வியலோடு இணைத்து தங்களை மேம்படுத்திக்கொள்ள முடியும் .

பாட நூல்கள் :

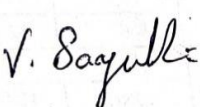
வ.எண்	நூலின் பெயர்	ஆசிரியர்	ஆண்டு/ பதிப்பு	பதிப்பகம்
1	காப்பியத் தூரிகை (செய்யுள், உரைநடை)	தமிழ்த்துறைப் பேராசிரியர்கள்	2020	ஸ்ரீ சாரதா பதிப்பகம்,ஸ்ரீ இராமகிருஷ்ண தபோவனம்,திருப்பராய்த்துறை
2	தமிழ் இலக்கணம் (யாப்பிலக்கணம், அணியிலக்கணம்)	தமிழ்த்துறைப் பேராசிரியர்கள்	2020	ஸ்ரீ சாரதா பதிப்பகம்,ஸ்ரீ இராமகிருஷ்ண தபோவனம்,திருப்பராய்த்துறை
3	கரிப்பு மணிகள்	ராஜம்கிருஷ்ணன்	2019 (1)	ஸ்ரீ செண்பகா பதிப்பகம்,சென்னை.
4	இலக்கிய வரலாறு	முனைவர். ச.சுபாஷ் சந்திர போஸ்	2019(9)	இயல் வெளியீடு,தஞ்சாவூர்.

மேற்பார்வை நூல்கள்

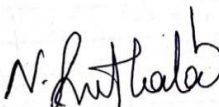
வ.எண்	நூலின் பெயர்	ஆசிரியர்	ஆண்டு/ பதிப்பு	பதிப்பகம்
1	சிலப்பதிகாரம்(கனாத்திறமுரைத்த காதை)	ந.மு.வேங்கடசாமி நாட்டார்	2010 (4)	சீதை பதிப்பகம், சென்னை.
2	மணிமேகலை(பாத்திரம் பெற்ற காதை)	ந.மு.வேங்கடசாமி நாட்டார், ஓளவை. சு. துரைசாமிப்பிள்ளை	2007 (1)	சாரதா பதிப்பகம், சென்னை.
3	கம்பராமாயணம் (துந்துபிப்படலம்)	டாக்டர். பூவண்ணன்	2002	வர்த்தமானன் பதிப்பகம், சென்னை.
4	பெரிய புராணம் (இளையான்குடி மாற நாயனார்புராணம்)	புலவர் பி. ரா. நடராசன்	2007 (2)	உமா பதிப்பகம், சென்னை.
5	சீறாப்புராணம் (புலி வசனித்த படலம்)	செய்குத் தம்பிப் பாவலர்	2014	யுனிவர்ஸல் பப்ளிஷர்ஸ், சென்னை.
6	இரட்சணிய யாத்திரிகம்	புலவர் சே. சுந்தரராசன்	2014 (1)	பாரி நிலையம், சென்னை.
7	மனோன்மனியம்(தமிழ்த்தெய்வ வணக்கம்)	ஜெ. ஸ்ரீ சந்திரன்	2000 (25)	வர்த்தமானன் பதிப்பகம், சென்னை.
8	யாப்பருங்கலக்காரிகை	மயிர்தசாகரர்	1994 (18)	கழக வெளியீடு, சென்னை.
9	தண்டியலங்காரம்	தண்டியடிகள்	2004 (21)	கழக வெளியீடு, சென்னை.
10	தமிழின்பம்	ரா.பி.சேதுபிள்ளை	2007(15)	பழனியப்பா பிரதர்ஸ்,சென்னை.
11	தமிழ் விருந்து	ரா.பி.சேதுபிள்ளை	2007(15)	பழனியப்பா பிரதர்ஸ்,சென்னை.
12	இலக்கிய வரலாறு	சு. ஆனந்தன்	2003 (13)	கண்மணிபதிப்பகம்,திருச்சி.



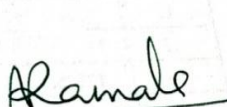
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Dr. N. Lavanya



Principal
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SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011

SEMESTER IV

Programme: UG 2 Yrs. Course	Subject: Part – I – Tamil	Stream A
Course code: 19P1TA4	Course Titleபண்டை இலக்கியம் :	
Category: Language	Credits: 4	

நோக்கம் :

- பழந்தமிழ் இலக்கிய வளத்தை உணர்த்துதல்.
- சங்க அக, புற பாடல் மரபுகளைப் பயிற்றுவித்தல்.
- வாழ்வியல் அறங்கள் மற்றும் வரலாற்றுச் செய்திகளை அறியச்செய்தல்.

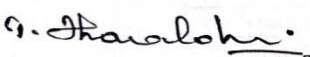
அலகு	பாடப்பிரிவு	விரிவான பாடத்திட்டம்	மணிக் கூறு	விளைவுகள்
1	செய்யுள்	எட்டுத்தொகை நூல்கள்:அகநூல்கள் 1. நற்றிணை - 142,172 பாடல்கள் 2. குறுந்தொகை - 2,92,135,145 3. அகநானூறு - 284 புறநூல்கள் 1. பதிற்றுப்பத்து – ஏழாம்பத்து – 64 2. புறநானூறு - 173 பத்துப்பாட்டு நூல் அகநூல் 1. பட்டினப்பாலை - 1-77;118-218 பதினெண் கீழ்க்கணக்கு நூல்கள் அறநூல்கள், 1. திருக்குறள் - வாய்மை , 22. நான்மணிக்கடிகை - 94,95 , 3. திரிகடுகம் - 27,28 4. சிறுபஞ்சமலம் - 70,72,79,82	30	மாணவிகளால் : அ. செவ்வியல் இலக்கியங்களை அறிந்து கொள்ள முடியும். ஆ. சமூகநீதிகளை அறிந்து சமூகத்தோடு இணைந்து வாழமுடியும். இ. போட்டித் தேர்வுகளில் உயர்ந்த மதிப்பெண்கள் பெறமுடியும்.
2	பொருள் இலக்கணம்	அகப்பொருள்-அன்பின் ஐந்திணைகள்- கைக்கிளை-பெருந்திணை புறப்பொருள்- வெட்சி-கரந்தை-வஞ்சி-காஞ்சி-நொச்சி- உழிஞை- தும்பை-வாகை-பாடான் மொழிப்பயிற்சி	15	அ. தமிழர்தம் வாழ்வியல் மற்றும் போர் முறைகளை அறிந்து கொள்ளமுடியும். ஆ. போட்டித் தேர்வுகளில் சிறந்த மதிப்பெண்கள் பெறமுடியும்.
3	உரைநடை	இலக்கிய வாழ்வியல் சிந்தனைகள் : 1.பாரியும் மாரியும் - ரா.பி.சேதுபிள்ளை 2. இரந்து வாழும் வாழ்வு - கி.ஆ.பெ.விசுவநாதம் 3. வீரமும் ஈகையும் - கி.வா.ஜகந்நாதன் 4. வறுமையிலும் மான உணர்ச்சி - டாக்டர் மா.இராசமாணிக்கனார் 5. கவரிமான் அன்னார் - அ.ச.ஞானசம்பந்தன் 6. தமிழ் அறநூல்கள் காட்டும் தமிழர்கல்வி முனைவர்சி.பாலசுப்பிரமணியன் நப்பூதனாரின் முல்லைப்பாட்டு - முனைவர் த.தனலெட்சுமி அகவாழ்வின் அன்பில் இயற்கை - திருமதி மு.கார்த்திகா	15	அ. இலக்கியச் சிந்தனையை வளர்த்துக் காள்ள முடியும். ஆ. வாசிப்புத் திறனை வளர்த்துக் கொள்ள முடியும். இ. ஆராய்ச்சிக்கட்டுரைகள் எழுதும் ஆர்வத்தினை வளர்த்துக் கொள்ள முடியும்.
4	துணைப் பாடம் – நாடகம்	ஸ்ரீமத்சுவாமிசித்பவானந்தர்- தான வீரன் கர்ணன் காகாபாரதத்தில் இடம்பெறும் கர்ணன் கதாபாத்திரத்தை மையமாக வைத்து எழுதப்பெற்ற நாடகம்)	15	அ. வாழ்வியல் அறத்தை அறிந்து கொள்ள முடியும். ஆ. நாடக அமைப்பினை அறிந்து நாடகம் எழுதும் திறனை வளர்த்துக் கொள்ள முடியும்
5	இலக்கிய வரலாறு	1. எட்டுத்தொகை நூல்கள் பத்துப்பாட்டு நூல்கள் 2. பதினெண்கீழ்க் கணக்கு நூல்கள் 3.	15	அ. செவ்வியல் இலக்கியங்களை அறிந்து கொள்ள முடியும். ஆ. நீதி நெறிகளை அறிந்து மேம்பட வாழ முடியும்.

பாட நூல்கள்:

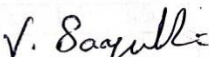
வ.எண்	நூலின் பெயர்	ஆசிரியர்	ஆண்டு/ பதிப்பு	பதிப்பகம்
1	செவ்வியல் நாணல்கள்(செய்யுள்,உரைநடை)	தமிழ்த்துறைப் பேராசிரியர்கள்	2020 (1)	ஸ்ரீ சாரதா பதிப்பகம், ஸ்ரீ இராமகிருஷ்ண தபோவனம், திருப்பராய்த்துறை
2	தமிழ் இலக்கணம் (அகப்பொருள்,புறப்பொருள்)	தமிழ்த்துறைப் பேராசிரியர்கள்	2020 (1)	ஸ்ரீ சாரதா பதிப்பகம், ஸ்ரீ இராமகிருஷ்ண தபோவனம், திருப்பராய்த்துறை
3	தான வீரன் கர்ணன் (நாடகம்)	ஸ்ரீமத்சுவாமிசித்பவானந்தர்	2013 (6)	ஸ்ரீ சாரதா பதிப்பகம், ஸ்ரீ இராமகிருஷ்ண தபோவனம், திருப்பராய்த்துறை
4	இலக்கிய வரலாறு	முனைவர்.ச.சுபாஷ்சந்திர	2019 (9)	இயல் வெளியீடு,தஞ்சாவூர்

மேற்பார்வை நூல்கள்

வ.எண்	நூலின் பெயர்	ஆசிரியர்	ஆண்டு/பதிப்பு	பதிப்பகம்
1	நற்றிணை	கு. வெ. பால சுப்பிரமணியன்	2007 (3)	நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை.
2	குறுந்தொகை	ஆசிரியர் குழு	1982 (2)	நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை.
3	அகநானூறு	புலியூர்க் கேசிகன்	2010 (1)	சாரதாபதிப்பகம்,சென்னை
4	புறநானூறு	ஒளவை. சு. துரைசாமிப்பிள்ளை	1951 (1)	கழக வெளியீடு, சென்னை
5	பதிற்றுப்பத்து	ஒளவை. சு. துரைசாமிப்பிள்ளை	2014	தமிழ் வளர்ச்சி இயக்ககம், சென்னை
6	பட்டினப்பாலை	உ.வே. சாமிநாதையர்	2017 (8)	உ.வே. சாமிநாதையர் நூல்நிலையம், சென்னை.
7	நம்பியகப்பொருள்	நாற்கவிராச நம்பி	2010	சாரதாபதிப்பகம்,சென்னை
8	புறப்பொருள் வெண்பா மாலை	ஐயனாரிதனார்	2004	கழக வெளியீடு, சென்னை
9	தமிழ் இன்பம்	ரா.பி.சேதுபிள்ளை	2007 (15)	பழனியப்பா பிரதர்ஸ்,சென்னை.
10	திருக்குறள் கட்டுரைகள்	கி.ஆ.பெ.விசுவநாதம்	1999 (11)	ஸ்ரீ ராஜேஸ்வரி பிரிண்டிங் ஒர்க்ஸ்,சென்னை.
11	அதிகமான் நெடுமான் அஞ்சி	கி.வா.ஜகநாநாதன்	1964 (4)	அமுத நிலையம் லிமிடெட்,சென்னை.
12	இலக்கிய அமுதம்	டாக்டர் மா.இராசமாணிக்கனார்	1958 (1)	ஒளவை வெளியீடு,சென்னை.
13	குறள் கண்ட வாழ்வு	அ.ச.ஞானசம்பந்தன்	1994 (1)	கங்கை புத்தக நிலையம்,சென்னை.
14	மண்ணில் நல்ல வண்ணம் வாழலாம்	முனைவர் சி.பாலசுப்பிரமணியன்	1989 (1)	நறுமலர்ப்பதிப்பகம்,சென்னை.
15	தமிழ் இலக்கியத்தில் படைப்பாளுமை – ஆய்வுக்கோவை	முனைவர்த.தனலெட்சுமி	2018 (1)	இலக்கியா பதிப்பகம்,தமிழூர்.
16	புலவர்களின் பார்வையில் இயற்கை- ஆய்வுக்கோவை (அகவாழ்வின் அன்பில் இயற்கை)	முகார்த்திகா.	2017 (1)	தமிழாழ்வுத்துறை, ஸ்ரீ சாரதா நிகேதன் மகளிர் அறிவியல் கல்லூரி,கரூர்.
17	இலக்கிய வரலாறு	சு. ஆனந்தன்	2006 (13)	கண்மணிபதிப்பகம், திருச்சி.



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Dr. T. Dhanalakshmi



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Dr. V. Sangeetha



Dean
Dr. N. Lavanya



Principal
Dr. N. Kamala

SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011
SEMESTER III

Programme: UG1 Yr Course	Subject: – துறைசாரா விருப்பப்பாடம்	Stream A & B
Course code:19NTA31	Course Title: பழகு தமிழ்தாள் –I	
Category: NME	Credits: 2	

நோக்கம் :

1. தமிழ் எழுத்துக்களின் அறிமுகம் மற்றும் சொற்களைக் கற்றல்.
2. சொந்திறன் மற்றும் எழுதும் திறனை வளர்த்தல்.
3. மொழிவழி தகவல்களை செறிவாகப் பயன்படுத்துதல்.

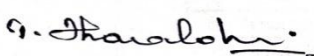
அலகு	விரிவானபாடத்திட்டம்	மணிக் கூறு	விளைவுகள்
எழுத்து அறிமுகம்	உயிர் எழுத்துக்கள் – மெய் எழுத்துக்கள் – உயிர் மெய்யெழுத்துக்கள்	02	மாணவிகளால் : அ .தமிழ் எழுத்துக்களை எழுதக் கற்றுக் கொள்ள முடியும்.
சொல் அறிமுகம்	சொல் கரம் வரை உள்ள “ன” கரம் முதல் “அ” – எழுத்துக்களுக்குச் சொற்களை அறிமுகப்படுத்துதல்	02	அவாசிக்கவும் கற்றுக் ,எழுதவும். கொள்ள முடியும்.
எழுத்துப் பயிற்சி	அகரவரிசைப்படி எழுதுதல் – இணையான பொருள் தரும் சொல்லை எழுதுக – பொருத்தமான சொற்களைக் காலியிடத்தில் நிரப்புக : சொல் ஒன்று - பொருள் இரண்டு	02	அ புதிர், வாக்கியம் அமைக்கவும் . வினாக்களைக் கண்டறியும் திறனை வளர்த்துக் கொள்ள முடியும்.
வாய்மொழிப் பயிற்சி	மாணவர் ஆசிரியர் உரையாடல் – ஒரு பொருள் குறித்துப் பேசுதல் –ஆசிரியர் கூறியதை அப்படியே கூறல்	02	அபிழையின்றிப் பேசும். ஆர்வத்தை வளர்த்துக் கொள்ள முடியும்.
சொல் உருவாக்கம்	எண்கள் – மடங்குகள் – நாட்கள் – மாதங்கள்	02	அ புதிய சொற்களை அறிந்து கொள்ள முடியும். ஆ எழுதும் ஆர்வத்தை வளர்த்துக் கொள்ள முடியும் .

பாட நூல்கள் :

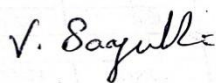
வ.எண்	நூலின்பெயர்	ஆசிரியர்	ஆண்டு /பதிப்பு	பதிப்பகம்
1	வளர்திறன் பயிற்சி ஏடு	தமிழ்த்துறைப் பேராசிரியர்கள்	2020	ஸ்ரீ சாரதா பதிப்பகம், ஸ்ரீ இராமகிருஷ்ண தபோவனம்,திருப்பராய்த்துறை
2	இனிய தமிழின் இயல்பு	முனைவர் பா.வளனரசு	2013 (1)	கதிரவன் பதிப்பகம், பாளையங்கோட்டை.

மேற்பார்வை நூல்கள்

வ.எண்	நூலின் பெயர்	ஆசிரியர்	ஆண்டு /பதிப்பு	பதிப்பகம்
1	நன்னூல்	பவணந்தி முனிவர்	2007 (1)	சாரதா பதிப்பகம்,சென்னை.
2	கண்ணா தமிழ் இலக்கணம் (எழுத்தும் சொல்லும்)	முனைவர் ச.பர்வத கிருஷ்ணம்மாள்	2017 (1)	நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை.



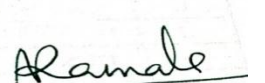
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Dr. N. Lavanya



Principal
Dr. N. Kamala

SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 627011
SEMESTER III

Programme:UG1 Yr Course	Subject: – துறைசாரா விருப்பப்பாடம்	Stream A & B
Course code: 19NTB31	Course Title: தீந்தமிழ்தாள் –I	
Category: NME	Credits: 2	

நோக்கம்

1. மொழித்திறனை வளர்த்தல்.
2. தொடர்பு திறன் மற்றும் சிந்தனைத்திறனை வளர்த்தல்.
3. இலக்கியங்கள் கூறும் வாழ்வியலை எடுத்துரைத்தல்.

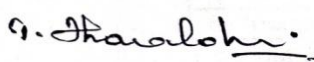
அலகு	விரிவானபாடத்திட்டம்	மணிக் கூறு	வினைவுகள்
செய்யுள்	குறுந்தொகை ...யாயும் ஞாயும்) – - 40) புறநானூறு192- ... யாதும் ஊரே) –) திருக்குறள் ,அன்புடைமை)–கல்வி,பிரிவாற்றாமை (	02	மாணவிகளால் : அ.இலக்கியங்கள் கூறும் வாழ்வியல் நெறிகளை அறிந்து கொள்ள முடியும்
இலக்கணம்	முதலெழுத்து – சார்பெழுத்து – சுட்டெழுத்து – வினாவெழுத்து	02	அ.மொழியைப் பிழையின்றிப் பேசவும் எழுதவும் கற்றுக்கொள்ள, முடியும்.
சொல் நயம்	சொற்களைப் பிரித்தெழுதுதல் – வேர்ச்சொல் கொண்டு சொற்களை உருவாக்குதல் பெயர்ச்சொல்லின் - வகையறிதல் – எதிர்ச்சொல் கண்டறிதல்	02	அ மொழித்திறனை வளர்த்துக் கொள்ள. முடியும். ஆ போட்டித் தேர்வுகளில் சிறந்த. மதிப்பெண்கள் பெறமுடியும்.
தொடர் நயம்	ஒருமை பன்மை – சந்திப்பிழைகள் – மரபுப்பிழைகள் - மயங்கொலிப்பிழைகள் நீக்குதல் ,எதுகை -மோனை, இயைபு-தன்வினை,பிறவினை-செய்வினைசெயப்பாட்டு வினை	02	அ சொற்களின் பிழைகள் நீக்குதலை . அறிந்து கொள்ள முடியும்.
இலக்கியப் படைப்புகள்	அடைமொழியால் குறிக்கப்பெறும் சான்றோர்களும்,நூல்களும் – விருதுகள் – படைப்பும் படைப்பாளியும்	02	அ இலக்கியங்கள் பற்றி அறிந்து. கொள்வதோடு போட்டித்தேர்வுகளில் உயர்ந்த மதிப்பெண்களையும் பெற முடியும்

பாட நூல்கள் :

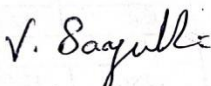
வ.எண்	நூலின்பெயர்	ஆசிரியர்	ஆண்டு /பதிப்பு	பதிப்பகம்
1	தீந்தமிழ் உரை	தமிழ்த்துறைப் பேராசிரியர்கள்	2020	ஸ்ரீ சாரதா பதிப்பகம், ஸ்ரீ இராமகிருஷ்ண தபோவனம், திருப்பராய்த்துறை
2	தமிழ் இலக்கணம்	தமிழ்த்துறைப் பேராசிரியர்கள்	2020	ஸ்ரீ சாரதா பதிப்பகம், ஸ்ரீ இராமகிருஷ்ண தபோவனம், திருப்பராய்த்துறை
3	இலக்கிய வரலாறு	முனைவர். ச.சுபாஷ் சந்திரபோஸ்	2019 (9)	இயல்வெளியீடு,தஞ்சாவூர்
4	போட்டித்தேர்வுக் குறிப்பேடு	தமிழ்த்துறைப் பேராசிரியர்கள்	2020	ஸ்ரீ சாரதா பதிப்பகம், ஸ்ரீ இராமகிருஷ்ண தபோவனம், திருப்பராய்த்துறை

மேற்பார்வை நூல்கள்

வ.எண்	நூலின் பெயர்	ஆசிரியர்	ஆண்டு/பதிப்பு	பதிப்பகம்
1	நன்னூல்	பவணந்தி முனிவர்	1993	சைவசித்தாந்த நூற்பதிப்புக் கழகம், சென்னை
2	இலக்கிய வரலாறு	சு. ஆனந்தன்	2003 (5)	கண்மணிபதிப்பகம்,திருச்சி.
3	பவர் பாஸ்	தங்க கணேசன்	2010	பவர் பதிப்பகம்,சென்னை.
4	தமிழ்இலக்கணம் (Group – I,II,IV,VAO,TRB, NET,SLET,UGC)	முனைவர் சி.சேதுராமன்	2019 (2)	நியூ செஞ்சரி புக் ஹவுஸ் (பி) லிட், சென்னை.
5	பொதுத்தமிழ் (TNPSC)	த.கோவிந்தராஜ் கோ.அனுபேபி லதா	2019 (3)	நியூ செஞ்சரி புக் ஹவுஸ் (பி) லிட், சென்னை.
6	ஐ.ஏ.எஸ் தேர்வும் அணுகுமுறையும்	வெ.இறையன்பு	2019 (13)	நியூ செஞ்சரி புக் ஹவுஸ் (பி) லிட், சென்னை.



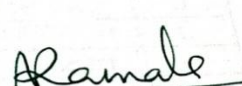
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Principal
Dr. N. Kamala

SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 627011
SEMESTER IV

Programme: UG1 Yr. Course	Subject: துறைசாராவிருப்பப்பாடம்	Stream A & B
Course code: 19NTA41	Course Title : பழகு தமிழ் தாள் – II	
Category: NME	Credits: 2	

நோக்கம் :

1. பிழையின்றிப் பேசவும், எழுதவும் பயிற்றுவித்தல்.
2. பண்பாடு மற்றும் கலாச்சாரத்தை எடுத்துரைத்தல்.
3. போட்டித்தேர்வுகளில் சிறந்த மதிப்பெண் பெறச்செய்தல்.

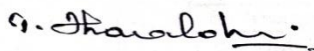
அலகு	விரிவான பாடத்திட்டம்	மணிக் கூறு	விளைவுகள்
செய்யுள்	ஆத்திசூடி - ஓளவையார் பாரதியார் - ஒளி படைத்த கண்ணினாய் வா வா) திருக்குறள் -(01,100,102,126,391)	02	மாணவிகளால்: அ. அற இலக்கியங்கள் வழி அறத்தினை அறிந்து கொள்ள முடியும்.
சொற்பொருள் அறிதல்	சரியான வாக்கியமாக மாற்றுதல் - பழமொழிகள் - எதிர்ச்சொல் - ஆங்கிலச்சொல்லுக்கு இணையான தமிழ்ச்சொல்	02	அ. வாசிப்புத் திறன் மற்றும் நினைவுத்திறனை வளர்த்துக் கொள்ள முடியும்.
நன்னெறிக் கதைகள்	கதைவாசித்துகதைசொல்லல்-விதியும் விலக்கும் - தீமையை எதிர்த்துப் போராடு	02	அ. நீதிநெறிகள் வழி வாழ்வை மேம்படுத்திக் கொள்ள முடியும்.
பண்பாட்டுக் கட்டுரை	பெற்றோரைப்பேண் - மாணாக்கன் பெற வேண்டிய மாண்பு -வைகறையில் துயில் எழுந்திரு	02	அ. சிந்தனைத்திறன் வளர்த்தல் மற்றும் பண்பாட்டைக் கற்றுக்கொள்ள முடியும்
மொழித்திறன் பயிற்சி	கடிதம் மற்றும் தன் விவரக் குறிப்பு எழுதுதல் - படைப்பும் படைப்பாளியும்	02	அ. மொழித்திறனை வளர்த்துக் கொள்ள முடியும்.

பாட நூல்கள் :

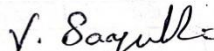
வ.எண்	நூலின்பெயர்	ஆசிரியர்	ஆண்டு /பதிப்பு	பதிப்பகம்
1	பயிற்சி ஏடு	தமிழ்த்துறைப் பேராசிரியர்கள்	2020	ஸ்ரீ சாரதா பதிப்பகம், ஸ்ரீ இராமகிருஷ்ண தபோவனம், திருப்பராய்த்துறை
2	மாணவருக்கு ஒரு சொல்	ஸ்ரீமத் சுவாமி சித்பவானந்தர்	2016 (11)	ஸ்ரீ இராமகிருஷ்ண தபோவனம், திருப்பராய்த்துறை.

மேற்பார்வை நூல்கள்

வ.எண்	நூலின்பெயர்	ஆசிரியர்	ஆண்டு /பதிப்பு	பதிப்பகம்
1	திருக்குறள்	கலைஞர் மு. கருணா நிதி	2010 (12)	திருமகள் நிலையம், சென்னை.
2	ஆத்திசூடி	வளர்மதி	1998 (2)	சரவணா பதிப்பகம், தேவக்கோட்டை.
3	பாரதியார் கவிதைகள்	எஸ்.மாரீஸ்வரி	2011(3)	ராமையா பதிப்பகம், சென்னை.



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Dean
Dr. N. Lavanya



Principal
Dr. N. Kamala

SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011
SEMESTER IV

Programme: UG1 Yr. Course	Subject: துறைசாராவிருப்பப்பாடம்	Stream A & B
Course code: 19NTB41	Course Title : தீந்தமிழ் தாள் – II	
Category: NME	Credits: 2	

நோக்கம்

1. மொழி வளம் மற்றும் சிந்தனைத்திறனை வளர்த்தல்.
2. படைப்புத்திறனை வளர்த்துக்கொள்ள ஊக்குவித்தல்.
3. போட்டித் தேர்வுகளில் சிறந்த மதிப்பெண்கள் பெறச் செய்தல்.

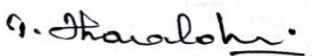
அலகு	விரிவான பாடத்திட்டம்	மணிக் கூறு	விளைவுகள்
செய்யுள்	பாரதியார்- நிவேதிதாதேவி பாரதிதாசன் -எங்கள் தமிழ் கவிமணி -சாரதா தேவி	2	மாணவிகளால் : அ. இலக்கியங்கள் கூறும் வாழ்வியலை கற்றுக் கொள்ள முடியும்.
இலக்கணம்	பெயர்ச்சொல் - வினைச் சொல் - வல்லினம்மிகும் இடங்கள் -வல்லினம் மிகா இடங்கள்	2	ஆ.சொற்களைப் பிழையின்றிப் பேசவும், எழுதவும் கற்றுக் கொள்ள முடியும்.
இலக்கிய வரலாறு	புதினம் - சிறுகதை -நாடகம் மரபுக்கவிதை ,புதுக்கவிதை - தோற்றமும் வளர்ச்சியும்	2	அ.படைப்புத்திறனை வளர்த்துக் கொள்ளும் முறை பற்றி அறிந்து கொள்ள முடியும்.
திறனறிதல்	தினம் - சிறுகதை -நாடகம் மரபுக்கவிதை , புதுக்கவிதை — ட்கூறுகளைத் திறனறிதல்	2	அ.படைப்புத்திறன்,கற்பனைத்திறன் மற்றும் எழுதும் திறனை வளர்த்துக் கொள்ள முடியும்.
மொழித்திறன் பயிற்சி	புத்தங்கள் (வேண்டுகை,முறையீடு,விண்ணப்பம்)	2	அ.கடிதம் எழுதும் முறையைக் கற்றுக் கொள்ளமுடியும்

பாட நூல்கள் :

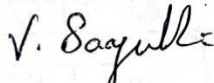
வ.எண்	நூலின்பெயர்	ஆசிரியர்	ஆண்டு /பதிப்பு	பதிப்பகம்
1	தீந்தமிழ் உரை (செய்யுள், மொழித்திறன் பயிற்சி)	தமிழ்த்துறைப் பேராசிரியர்கள்	2020	ஸ்ரீ சாரதா பதிப்பகம், ஸ்ரீ இராமகிருஷ்ண தபோவனம், திருப்பராய்த்துறை.
2	தமிழ் இலக்கணம் (சொல்லிலக்கணம்)	தமிழ்த்துறைப் பேராசிரியர்கள்	2020	ஸ்ரீ சாரதா பதிப்பகம், ஸ்ரீ இராமகிருஷ்ண தபோவனம், திருப்பராய்த்துறை.
3	இலக்கிய வரலாறு	சு.ஆனந்தன்	2003 (13)	கண்மணிபதிப்பகம்,திருச்சி .
4	படைப்புக்கலை	முனைவர் மு.சுதந்திரமுத்து	2008 (1)	அறிவு பதிப்பகம், சென்னை .

மேற்பார்வை நூல்கள்

வ.எண்	நூலின் பெயர்	ஆசிரியர்	ஆண்டு /பதிப்பு	பதிப்பகம்
1	இலக்கிய வரலாறு	முனைவர் பாக்கியமேரி	2010 (3)	நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை .
2	நன்னூல்	கழக வெளியீடு	1993	சைவசித்தாந்த நூற்பதிப்புக்கழகம், சென்னை
3	திறனாய்வும் தமிழ் இலக்கியக் கொள்கைகளும்	டாக்டர் ந.பிச்சமுத்து	2002 (5)	சக்தி வெளியீடு,சென்னை .
4	திறனாய்வுக்கலை	தி.சு.நடராசன்	1998 (2)	நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை .



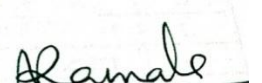
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Certificate Course

Objectives of the course

- ஏட்டில்எழுதப்படாதஇலக்கியங்களைஅறியச்செய்தல்.
- பழங்காலச்சமுதாயத்தின்பழக்கவழக்கங்களைஅறியச்செய்தல்.
- படிப்பறிவில்லாக்கிராமமக்களின்கற்பனைவளத்தையும், கவித்திறனையும்மாணவர்கள்அறியச்செய்தல்.

Purpose and scope of the course:

- தமிழின்மேன்மையைஉணரச்செய்தல்.
- பாமரமக்களின்மனநிலையைஅறியச்செய்தல்.
- கற்பனைவளத்தையும், கவித்திறத்தையும்பெருகச்செய்தல்.

Outcome of the course

- சிறந்தகலைஞர்களைஉருவாக்குதல்.
- சமூகத்தோடுஇணைந்துசெயல்படப்பழக்குதல்.
- பண்பாட்டையும்கலாச்சாரத்தையும்பாதுகாத்தல்.
- பழந்தமிழ்க்கலைகளைப்போற்றிப்பாதுகாத்தல்.

Text Book

நாட்டுப்புறவியல் - ஓர்அறிமுகம்

சு. சக்திவேல்

Reference Books:

நாட்டுப்புறவியல் - பேரா. சு. சண்முகசுந்தரம்

நாட்டுப்புறவியல் - பேரா. தே. லுர்து

Duration of the Course & Attendance:

இந்தச்சான்றிதழ்வகுப்பு 25 நாட்கள்நடத்தப்படும். வகுப்புநடக்கும்நாட்களில்,

வருகைப்பதிவேட்டில்மாணவியரின்வருகைகுறிக்கப்படும்.

Examination:

30 நாட்கள்வகுப்புஎடுத்துமுடித்தபின்னர்ஒருநாளில் 2 மணிநேரம்தேர்வுநடத்தப்பட்டுவிடைத்தாள்கள்திருத்தப்படும்.

Theory-75 marks; Assignment or quiz-5 marks

Practical

மாணவியரைப்பலகுழுக்களாகப்பிரித்து, கிராமியக்கலைகளில்எதேனும்ஒன்றைவிரிவாகஎடுத்துச்சொல்லச்செய்து,

அக்கலையைநிகழ்த்திக்காட்டச்செய்துஅதற்குமதிப்பெண்கள்வழங்கப்படும். (20 மதிப்பெண்கள்)

Quiz

பழமொழிகள்இபுதிர்கள்ஆகியவற்றைவினாடி-வினாவாகக்கொடுத்துமதிப்பெண்கள்வழங்குதல். (5 மதிப்பெண்கள்)

Grading system and certification

Overall Grade

Marks	Grade
91-100	O
81-90	E
71-80	A+
61-70	A
51-60	B
41-50	C
35-40	D

Certificates will be provided by Certificate Course Co-ordinator to the concerned faculty.

Chairperson of the course:

முனைவர்சு. பர்வதகிருஷ்ணம்மாள்,

துறைத்தலைவர்,

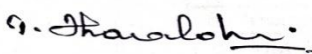
தமிழ்த்துறை.

Course Teacher:

முனைவர்த. தனலெட்சுமி,

உதவிப்பேராசிரியர்,

தமிழ்த்துறை.



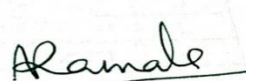
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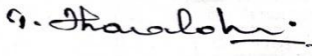


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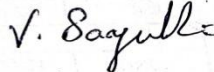
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Syllabus
நாட்டுப்புறவியல்

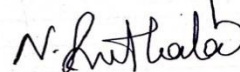
அலகு - 1	நாட்டுப்புறவியல் – ஓர் அறிமுகம்	L – 6 Hrs
நாட்டுப்புறவியல்வரையறை - அறிஞர்கள்கூற்று -		
முன்னோடிகள் – படைப்புகள் – தன்மைகள்		
அலகு - 2	நாட்டுப்புறவியலின்தோற்றமும்வளர்ச்சியும்	L – 6 Hrs
நாட்டுப்புறஇலக்கியத்தின்தோற்றம் – வகைகள் -		
பாடல்கள் – கதைகள் – பழமொழிகள் – புதிர்கள்அல்லது		
விடுகதைகள்		
அலகு - 3	நாட்டுப்புறக்கலைகளும்இவினையாட்டுகளும்	L – 6 Hrs + P – 6 Hrs
கரகாட்டம் – பொம்மலாட்டம் – வில்லுப்பாட்டு –		
ஒயிலாட்டம் – கும்மியாட்டம் – கோலாட்டம் –		
காவடியாட்டம் – சிலம்பாட்டம் – தப்பாட்டம்		
சடுகுடு – உறியடித்தல் – பச்சைக்குதிரைதாண்டுதல் –		
பம்பரம் – எலியும்பூனையும் – குலைகுலையாழுந்திரிக்கா -		
கழற்சிக்காய் – கயிறுஇழுத்தல் – பூப்பறிக்கவருகிறோம்		
அலகு - 4	வழிபாடுகளும்நம்பிக்கைகளும்	L – 6 Hrs
சிறுதெய்வவழிபாடு – பெண்தெய்வங்கள் – வழிபாட்டு		
முறை – சடங்குகள் – நம்பிக்கைகள்		
		Total: L 24 + P 6
Model Question Paper	- 75 Marks	
Multiple Choice Question	10X1=10	
Answer the following in 250 words	5X5=25	
Answer the following in 600 words	5X8=40	



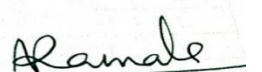
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கல்வெட்டியல்

பாட நோக்கம்:

1. தமிழின் தொன்மையை அறியச் செய்தல்.
2. கல்வெட்டுகள் வழி தமிழ்ப் பண்பாட்டின் சிறப்பை அறியச் செய்தல்.
3. தமிழர் வரலாற்றைப் பயிற்றுவித்தல் .

பயன்கள் :

1. தமிழ் இனத்தின் வரலாற்றை அறிந்து கொள்வர்.
2. பண்பாட்டையும், வாழ்வியலையும் அறிந்து கொள்வர்.

அலகு 1 தமிழ் எழுத்துகளின் தோற்றமும் வளர்ச்சியும் – குறியீடுகள் – பிராமி – வட்டெழுத்து –

கிரந்த எழுத்துகள்

அலகு 2 கல்வெட்டுகள் எழுதப்பட்ட முறை – கல்வெட்டுகளின் பொதுத் தன்மை – மெய்க்கீர்த்தி

– ஒம்படைக்கிளவி – செப்பேடுகள் – நடுகற்கள்.

அலகு 3 போர் விளக்கக் கல்வெட்டுகள் – சோழர், பாண்டியர் காலக் கல்வெட்டுகளின்

தனித்தன்மைகள் – கல்வெட்டுகளில் இடம்பெறும் வாழ்வியல் செய்திகள் – கல்வெட்டுகள் உணர்த்தும் பண்பாட்டுச் செய்திகள்.

அலகு 4 தமிழ் இலக்கியங்களில் கல்வெட்டுகள் – கோயில்களில் கல்வெட்டுகள் – நெல்லையப்பர்

கோயில் – கிருஷ்ணாபுரம் கோயில் கல்வெட்டுகள் – கல்வெட்டுகள் உணர்த்தும் அரிய செய்திகள்

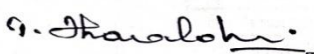
அலகு 5 கலைச்சொற்கள் – கல்வெட்டுத் தொடர்கள்.

பாட நூல் :

1. முனைவர். எ.சுப்பராயலு, முனைவர். செ. இராசு (பதிப்பாசிரியர்கள்), தமிழ்க் கல்வெட்டியலும் வரலாறும், தமிழ்ப்பல்கலைக்கழக வெளியீடு, தஞ்சாவூர்.

பார்வை நூல்கள் :

1. கா. ராஜன், கல்வெட்டியல், மனோ பதிப்பகம், தஞ்சாவூர் – 613005
2. முனைவர். ஆ.ஜெகதீசன், கல்வெட்டியல்(தமிழ் இலக்கியத்தில் கல்வெட்டியல் கூறுகள்), ராமையா பதிப்பகம், சென்னை – 14.
3. க. நெடுஞ்செழியன், மெய்க்கீர்த்திகள், மனிதம் பதிப்பகம், 54, இராசாராம் சாலை, கே.கே.நகர், திருச்சி.
4. டாக்டர். அ. கிருஷ்ணன், கல்வெட்டில் வாழ்வியல், மணிவாசகர் பதிப்பகம், சென்னை – 600001.



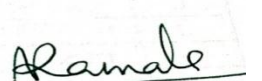
HOD
Dr. T. Dhanalakshmi



Join Dean
Dr. V. Sangeetha



Dean
Dr. N. Lavanya



Principal
Dr. N. Kamala

SRI SARADA COLLEGE FOR WOMEN
(An Autonomous Institution)
(Affiliated To Manonmaniam Sundaranar University, Tirunelveli)
Institution Recognised U/S 2(F) and 12(B) Of UGC & Reaccredited With “A” Grade by NAAC
(A Branch of Sri Ramakrishna Tapovanam, Thirupparaithurai)
Ariyakulam, Thoothukudi NH, Maharaja Nagar Post,
TIRUNELVELI – 627 011.

DEPARTMENT OF SANSKRIT

COURSE STRUCTURE FOR 2019-2020 BATCH

STREAM –A

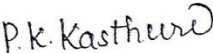
B.A.,(ECONOMICS & ENGLISH) / B.Sc.,(CHEMISTRY, MATHEMATICS & PHYSICS)

Sem	Part	Category	Course code	Course Title	Hours/Week			Credits	Page. No
					L	P	T		
I	I	Language	19P1SA1	Fundamentals, Translation and History of literature	6	0	6	4	
II	I	Language	19P1SA2	Poetry & History of literature	6	0	6	4	
III	I	Language	19P1SA3	<i>Gadyakavyas</i> , History of Prose, <i>Alankaras</i> , <i>Sandhi</i> and Scientific Literature in Sanskrit.	6	0	6	4	
IV	I	Language	19P1SA4	Drama, History of Dramatic literature and spoken Sanskrit.	6	0	6	4	

STREAM –B

B.B.A / B.COM / B.COM (C.S) / B.Sc.,(I.T& C.S) / B.C.A

Sem	Part	Category	Course code	Course Title	Hours/Week			Credits	Page. No
					L	P	T		
I	I	Language	19P1SB1	Fundamentals, Poetry, Prose and History of literature	6	0	6	4	
II	I	Language	19P1SB2	Drama, Poetics and Translation	6	0	6	4	

 HOD Selvi.P.K. KASTHURI	 JOINT DEAN Dr. V. SANGEETHA	 DEAN Dr. N. LAVANYA	 PRINCIPAL Dr. N. KAMALA

S – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVELI - 627011
Stream – A (B.A English / B.A Economics / B.ScMaths / B.Sc Physics / B.Sc Chemistry)
SEMESTER I

Programme: UG	Subject: Sanskrit
Course code:19P1SA1	Course Title: Fundamentals, Translation and History of literature
Category: Part I Language	Credits: 4

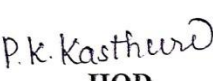
Objectives:

- To learn fundamentals of Sanskrit Grammar.
- To learn translation and Sanskrit literature.

Units	Detailed Syllabus	Hours
1	Fundamentals,lingatrayam, purushatrayam, vacanatrayam, kaalatrayam,Sentence Formation and Declension of Nouns ending in अ , इ(masculine), आ, ई (Feminine), अ (Neuter),तद् (all genders)	18
2	Conjugation – Present, Past and Future Tenses of 10 Verb roots viz., पठ्, लिख्, धाव्, नम्, गम्,खाद्, पिब्, भू, चल्, andगाय्	18
3	Translation into English or Tamil from Sanskrit and vice versa:शिष्टाचारः -परिचयः-प्रयाणम्]	18
4	Vedas –Vedic period – Rigveda – Yajurveda – Samaveda – Atharvaveda -Vedangas– Parts of Vedapurusha – Preceptors - Important treatises and its content.	18
5	Epics – Ramayana – Mahabharata – Date – Authorship – Influence in later literature – Puranas.	18

Reference Books:

S.No	Title of the Book	Author	Publication	Year
1.	SabdaManjari	T.K.RamachandraIyer	Published by R.S.Vadhyar& Sons, Book-Sellers & Publishers, Kalpathi, Palakkad - 678003.	2009
2.	DhaturupaManjari	T.K.RamachandraIyer	Published by R.S.Vadhyar& Sons, Book-Sellers & Publishers, Kalpathi, Palakkad – 678003.	2007
3.	A Short History of Sanskrit Literature	T.K.RamachandraIyer	Published by R.S.Vadhyar& Sons, Book-Sellers & Publishers, Kalpathi, Palakkad – 678003.	2005
4.	SanskritaVyavahara Sahasri	SanskritaBharati	Published by SanskritaBharati, Mata MandirGali, Jhandewalan, New Delhi – 55.	2010


HOD
Selvi.P.K. KASTHURI


JOINT DEAN
Dr. V. SANGEETHA


DEAN
Dr. N. LAVANYA


PRINCIPAL
Dr. N. KAMALA

S – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVELI - 627011

Stream – B (B.Com /B.Com (C.S) /BBA /B.Sc C.S /B.Sc I.T /BCA)

SEMESTER I

Programme: UG	Subject: Sanskrit
Course code:19P1SB1	Course Title: Fundamentals, Poetry, Prose and History of literature
Category: Part I Language	Credits:4

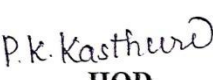
Objectives:

1. To make students to learn the basics of Sanskrit language.
2. To make students to learn the Sanskrit classical literature.

Units	Detailed Syllabus	Hours
1	Fundamentals,lingatrayam, purushatrayam, vacanatrayam, kaalatrayam, Sentence Formation and Declension of Nouns ending in अ , इ(masculine), आ, ई (Feminine), अ (Neuter), तद् (all genders).	18
2	Conjugation – Present, Past and Future Tenses of 10 Verb roots viz., पठ्, लिख्, धाव्, नम्, गम्,खाद्, पिब्, भ्रू, चल्, and गाय् – Usage of verbs in sentences.	18
3	Kalividambanam– Scholars – Teachers – Astrologers.	18
4	BharataSangraha – Virataparva: Advise of Sage Dhaumya – Servitude of Pandavas – Slaughter of Kichaka – War towards Virata–Identification of Pandavas – Conclusion.	18
5	History of Prose Literature: Origin - Development- Types of Prose literature - Dasakumaracharitam - Kadambari – Vasavadatta – Harshacaritam.	18

Reference Books:

S.No	Title of the Book	Author	Publication	Year
1.	SabdaManjari	T.K.RamachandraIyer	R.S.Vadhyar& Sons, Book-Sellers&Publishers, Kalpathi, Palakkad - 678003.	2009
2.	DhaturupaManjari	T.K.RamachandraIyer	R.S.Vadhyar& Sons, Book-Sellers & Publishers, Kalpathi, Palakkad – 678003.	2007
3.	A Short History of Sanskrit Literature	T.K.RamachandraIyer	R.S.Vadhyar& Sons, Book-Sellers & Publishers, Kalpathi, Palakkad – 678003.	2005
4.	Bharatasangraha - virataparva	SamskrtaBharati	The KuppaswamiSastri Research Institute, Chennai-4.	2010
5.	Kalividambanam and Sabharanjanasatakam	Dr.S.Srinivasasharma Prof.C.R.Anantharaman	Sri Sadguna Publication, Madurai.	2010

 HOD	 JOINT DEAN	 DEAN	 PRINCIPAL
Selvi.P.K. KASTHURI	Dr. V. SANGEETHA	Dr. N. LAVANYA	Dr. N. KAMALA

S – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVELI - 627011

Stream – A (B.A English / B.A Economics / B.Sc Maths / B.Sc Physics / B.Sc Chemistry)

SEMESTER II

Programme: UG	Subject: Sanskrit
Course code: 19P1SA2	Course Title: Poetry & History of literature
Category: Part I language	Credits: 4

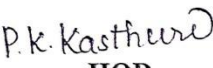
Objectives:

1. To learn didactic poetry.
2. To learn the history of Mahakavyas.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Kalividambanam – Introduction to the text and the author Nilakantadikshitar – Scholars – Teachers – Astrologers	18
2	Kalividambanam– Physicians: Diagnosing disease - convincing patients – selection of medicine – kali era.	18
3	Sabharanjanasatakam – Knowledge: Greatness of scholars - State of illiterate people – Greatness of knowledge. Poetry: Greatness of Poetic knowledge -Learning of Scriptures and poetry.	18
4	Mahakavyas - Origin and Development of Mahakavyas, - Mahakavyalakshnam - Mahakavyas of Kalidasa – Raghu vamsam – Kumara sambhavam.	18
5	Naishadhiyacharita of Sriharsa - kirantarjuniyam of Bharavi - Shishupalavadam of Magha- Lyrics - Devotional Lyrics – Erotic lyrics - Didactic Lyrics.	18

Reference Books:

S.No	Title of the Book	Author	Publication	Year
1.	Kalividambanam and Sabharanjanasatakam	Dr.S.Srinivasasharma Prof.C.R.Anantharaman	Sri Sadguna Publication, Madurai.	2010
2.	A History of Sanskrit Literature	Berriedale Keith	MotilalBanarsidass Publishers Pvt.ltd, Delhi.	2003
3.	A Short History of Sanskrit Literature	T.K.RamachandraIyer	R.S.Vadhyar& Sons, Book-Sellers & Publishers, Kalpathi, Palakkad. 678003.	2005

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SEMESTER II

Programme: UG	Subject: Sanskrit
Course code:19P1SB2	Course Title: Drama, Poetics and Translation
Category: Part I Language	Credits: 4

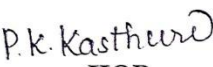
Objectives:

1. To learn Sanskrit drama
2. To learn Alankaras
3. To learn Epics and Puranas.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Karnabharam- Introduction to the Author and work – conversation between Karna and Shalya – Indra’s entry.	18
2	Indra’s conversation with karna – Indra’s exit – Karna’s entry into the battlefield.	18
3	Selected Alankaras: उपमा: - उपमेयम् – उपमानम् – साधारणाधर्मः – उपमावाचकशब्दः - अनन्वयः – अपह्नुतिः – दीपकम् - उल्लेखा – व्यतिरेकः - अर्थान्तरन्यासः	18
4	Spoken Sanskrit – Self introduction – Numbers – Time – Question words – Indeclinables.	18
5	History of Dramatic Literature – Origin of Drama – Development – Types of drama – Bhasa’s thirteen plays – Malavikaagnimitram – Vikramorvashiyam – AbhinjnanaShakuntalam- famous authors of drama.	18

Reference Books:

S.No	Title of the Book	Author	Publication	Year
1.	Karnabharam	T.K.RamachandraIyer	Published by R.S.Vadhyar& Sons, Book-Sellers & Publishers, Kalpathi, Palakkad - 678003.	2010
2.	Kuvalayananda	AppayyaDikshita	Published by R.S.Vadhyar& Sons, Book-Sellers & Publishers, Kalpathi, Palakkad – 678003.	2003
3.	A Short History of Sanskrit Literature	T.K.RamachandraIyer	Published by R.S.Vadhyar& Sons, Book-Sellers & Publishers, Kalpathi, Palakkad – 678003.	2005
4.	Abhyaasapustakam	SanskritaBharati	Published by SamskritaBharati, Coimbatore- 641072.	2006


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DEAN
Dr. N. LAVANYA


PRINCIPAL
Dr. N. KAMALA

SEMESTER III

Programme: UG	Subject: Sanskrit
Course code: 19P1SA3	Course Title: Gadyakavyas, History of Prose,Alankaras, Sandhi and Scientific Literature in Sanskrit.
Category: Part I Language	Credits: 4

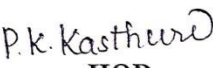
Unit	Syllabus	Outcome	Hours
1	History of Prose literature: Prose Literature - <i>Campul</i> iterature- Fable literature	By and through this unit, 1. Students learn about the Sanskrit prose literature. 2. Students learn about the <i>Campul</i> iterature. 3. Students learn about the Fable literature.	18
2	<i>Sukanasopedesa.</i> <i>PancatantraAmukham.</i>	1. Students know about moral ethics in Sanskrit literature. 2. Students will get familiarize with the prose style of <i>Kadambari</i> and <i>Pancatantra</i> . 3. Students learn the valuable advice to the youngster in <i>Sukanasopadesa</i> .	18
3	<i>SamsargajaahGunaahDoshaahBhavanti.</i> <i>Alankara:Upama – Ullekha - Rupaka–Dipaka</i>	1. Students understand the prose style. 2. Students understand the figures of speech in Sanskrit Literature. 3. Students know about the importance of <i>alankaras</i> in Poetry.	18
4	Vyatireka – <i>shlesha.</i> <i>Simple Sandhis:Savarnadeerghasandhi – Gunasandhi – Vruddhisandhi.</i>	1. Students learn about the figures of speech. 2. Students learnthe concept and formation of <i>Sandhis</i> . 3. Students learnabout the <i>Achsandhi</i> .	18
5	History of Scientific Literature: Astronomy- Mathematics- Laws of Conduct- Ayurveda-Administration- Archery - Architecture.	1. Studentsenhance the knowledge about the ancient scientific advancement in our nation. 2. Students learn about the Ayurveda, Politics and Astronomy. 3. Students learn about the administration, Archery and Architecture.	18

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publishers
1	<i>SahityaRasakanaah</i>	Dr.Jagadeeshan	1996(2)	Vignesh Publication, Madurai.
2	<i>Pravesha</i>	SanskritaBharati	2000(1)	SanskritaBharati trust, Coimbatore.
3	<i>Kuvalayananda</i>	AppayaDikshita	2005(1)	R.S.Vadhyar& Sons, Palghat.
4	A Short History of Sanskrit Literature	T.K.RamachandraIyer	2006(2)	R.S.Vadhyar& Sons, Palghat.
5	<i>BharatiyaVigyanaSathanaikal</i>	Dr.V.S.Narasimhan	1992(1)	Alliance Publications, Chennai.

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publishers
1	A History of Sanskrit Literature	Berriedale Keith	1993(1)	MotilalBanarsidassPublishers,New Delhi.
2	<i>BharathaNaaduPaarukellamThilagam</i>	R.B.V.S.Manian	2002(1)	Alliance Publishers,Chennai.


HOD
Selvi.P.K. KASTHURI


JOINT DEAN
Dr. V. SANGEETHA


DEAN
Dr. N. LAVANYA


PRINCIPAL
Dr. N. KAMALA

S – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVELI - 627011
Stream – A (B.A., (Economics & English) / B.Sc., (Chemistry, Mathematics & Physics))
SEMESTER IV

Programme: UG	Subject: Sanskrit
Course code: 19P1SA4	Course Title:Drama, History of Dramatic literature, and Spoken Sanskrit.
Category: Part I Language	Credits: 4

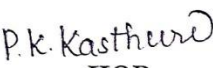
Unit	Syllabus	Outcome	Hours
1	Karnabharam: Introduction to the Author and work – conversation between Karna and Shalya – Indra’s entry.	By and through this unit, 1. Students enhance the vocabulary of Sanskrit Language and Pattern of drama through a drama. 2. Students know about the types of heroes in drama. 3. Studentsknow about the application of <i>rasa</i> in the Drama.	18
2	Indra’s conversation with Karna – Indra’s exit – Karna’s entry to battlefield.	1. Studentsunderstand the dramatic structure. 2. Studentsdevelop the confidence even in struggle. 3. Students learn about the noble characters of Karna in the play.	18
3	History of dramatic literature: Development - Types - Characteristics - Plays of Bhasa.	1. Students know about the development of Sanskrit drama. 2. Students know about the Sanskrit dramas and its wide and unique characteristics. 3. Students know about the characteristics of Sanskrit drama.	18
4	Plays of Kalidasa. Spoken Sanskrit-1: Self-introduction – Numbers – Time.	1. Students develop the Sanskrit speaking skill. 2. Students develop the confidence in Sanskrit reading. 3. Students familiarise with the plays of Kalidasa.	18
5	Spoken Sanskrit - 2: Question words – Indeclinable.	1. Studentsdevelop the Sanskrit speaking skill. 2. Studentsdevelop the confidence in Sanskrit reading. 3. Studentsdevelop the Sanskrit writing skills.	18

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publishers
1.	<i>Karnabharam</i>	Bhasa	2017(1)	R.S.Vadhyar& Sons, Palghat.
2.	A Short History of Sanskrit Literature	T.K.RamachandraIyer	2006(2)	R.S.Vadhyar& Sons, Palghat.
3.	<i>Abhyaasapustakam</i>	SanskritaBharati	2006(1)	SanskritaBharati, Coimbatore.

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publishers
1.	A History of Sanskrit Literature	Berriedale Keith	2015(3)	MotilalBanarsidass Publishers, New Delhi.
2.	<i>SanskritaVyavaharaSahasri</i>	SanskritaBharati	2006(1)	SanskritaBharati, Coimbatore.

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SRI SARADA COLLEGE FOR WOMEN, TIRUNELVELI-627011
DEPARTMENT OF SANSKRIT
CERTIFICATE PROGRAMME
CERTIFICATE IN GRANTHA SCRIPT

1. PROGRAMME TITLE: Grantha script

2. OBJECTIVES:

- To make students familiar with the ancient script ‘Grantha’, its origin and development.
- To train the students to write and read the Grantha script fluently.
- To develop the skill to decipher Grantha Inscriptions and manuscripts.

3. SYLLABUS:

Unit	Syllabus	Hours
1	Introduction to Grantha - Vowels – Consonants –conjunct consonants.	10
2	Reading - word writing.	10
3	sentence writing	10
4	Deciphering Grantha palm leaves.	10
5	Deciphering Grantha inscriptions.	10

4. REFERENCE BOOKS:

S.No	Title of the Book	Author/s	Year (Edn)	Publishers
1.	A Handbook of Grantha Manuscript training	Dr.V.Veeraraghavan	2017(1)	Saraswati Mahal Library, Tanjore.

5. ELIGIBILITY: Minimum +2 open to all on their options.

6. DURATION: 35 HOURS (1 semester)

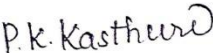
7. EXAMINATION/EVALUATION COMPONENTS:

INTERNAL-40

Average of two test=20 marks
Assignment=5 marks
Quiz=5 marks
Field visit / Case study report=10 marks

EXTERNAL-60

Section A – True or False = 10 marks
Section B – 5 out of 8 (each 4 marks) = 20 marks
Section C – 3 out of 5 (each 10 marks) = 30 marks


HOD
Selvi.P.K. KASTHURI


JOINT DEAN
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DEAN
Dr. N. LAVANYA


PRINCIPAL
Dr. N. KAMALA

SRI SARADA COLLEGE FOR WOMEN, TIRUNELVELI-627011
DEPARTMENT OF SANSKRIT
DIPLOMA PROGRAMME
DIPLOMA IN VEDANTA

1. PROGRAMME TITLE: Vedanta

2. OBJECTIVES:

- To make students to get familiar with the ancient Philosophical thoughts.
- To make students to learn an outline of Vedanta Sara.
- To apply the moral aspects in Vedanta Sara to the practical life.
- To understand the application of Philosophy for maintaining a peaceful mind.

3. SYLLABUS:

PAPER-I: HISTORY OF DARSANA LITERATURE

Unit	Syllabus	Hours
1	Systems of Indian Philosophy: Nyaya – Vaisheshika.	10
2	Sankhya – Yoga.	10
3	Mimamsa.	10
4	Vedanta – Advaita – Visishtadvaita – Dvaita.	10
5	Carvaka – Buddhism – Jainism.	10

PAPER – II: VEDANTA SARA

Unit	Syllabus	Hours
1	Vedantasara: Preliminaries.	10
2	Superimposition.	10
3	<i>Jiva</i> and Superimposition.	10
4	De-superimposition.	10
5	Steps to Self-Realization – The <i>Jivanmukta</i> .	10

4. Reference Books:

S.N	Title of the Book	Author/s	Year (Edn)	Publishers
1.	A Short History of Sanskrit Literature	T.K.Ramachandralyer	2006(2)	R.S.Vadhyar& Sons, Palakkad.
2.	Vedanta Sara	Swami Nikhilananda	2002(11)	Advaita Ashrama, Kolkata.

5. ELIGIBILITY: Minimum +2 open to all on their options.

6. DURATION: 65 HOURS (1 semester)

7. EXAMINATION/EVALUATION COMPONENTS:

INTERNAL-40

Average of two test = 20 marks

Assignment = 5 marks

Quiz = 5 marks

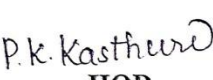
Field visit / Case study report = 10 marks

EXTERNAL-60

Section A – True or False = 10 marks

Section B – 5 out of 8 (each 4 marks) = 20 marks

Section C – 3 out of 5 (each 10 marks) = 30 marks

			
HOD	JOINT DEAN	DEAN	PRINCIPAL
Selvi.P.K. KASTHURI	Dr. V. SANGEETHA	Dr. N. LAVANYA	Dr. N. KAMALA

SRI SARADA COLLEGE FOR WOMEN

(An Autonomous Institution)

Degree: UG Programme : BA English Programme Structure (wef 2019-2022)

SE M	PART	CATEGORY	COURSE CODE	COURSE TITLE	HOURS/WEEK			CREDITS	Page No
					L	P	T		
1	I	Language I	19P1TA1	Tamil	6	0	6	4	
			19P1SA1	Sanskrit					
1	II	Language II	19P2EA1	General English - I	6	0	6	4	
1	III	Core 1	19UENC11	Indian Writing in English I	4	0	4	4	
1	III	Core 2	19UENC12	British Fiction	4	0	4	4	
1	III	Core 3	19UENC13	Australian Literature	4	0	4	4	
1	III	Allied	19UAEN11	Social History of England	4	0	4	3	
1	IV	Common	19UCES11	Environmental Studies	2	0	2	2	
				Sub Total	30		30	25	
2	I	Language I	19P1TA2	Tamil	6	0	6	4	
			19P1SA2	Sanskrit					
2	II	Language II	19P2EA2	General English- II	6	0	6	4	
2	III	Core 4	19UENC21	Indian Writing in English II	4	0	4	4	
2	III	Core 5	19UENC22	American Literature	4	0	4	4	
2	III	Core 6	19UENC23	English Grammar and Usage	4	0	4	4	
2	III	Allied	19UAEN21	Literary Forms and Devices	4	0	4	3	
2	IV	Common	19UCBE21	Value Based Education / Social Harmony	2	0	2	2	
				Sub Total	30		30	25	
3	I	Language I	19P1TA3	Tamil	6	0	6	4	
			19P1SA3	Sanskrit					
3	II	Language II	19P2EA3	General English- III	6	0	6	4	
3	III	Core 7	19UENC31	History of English Literature I	5	0	5	4	
3	III	Core 8	19UENC32	Subaltern Studies	4	0	4	3	
3	III	Allied	19UENA31	Commonwealth Literature	3	0	3	3	
3	III	SBS	19UENS31	Basics of Phonetics	4	0	4	4	
3	IV	NME	19UNEN3A	An Introduction to Journalism	2	0	2	2	
3	IV	NME	19UNEN3B	Developing Communication Skills					
3	IV	Common	19UCYP31	Yoga Theory & Practices				1	
				Sub Total	30		30	25	
4	I	Language I	19P1TA4	Tamil	6	0	6	4	
			19P1SA4	Sanskrit					
4	II	Language II	19P2EA4	General English- IV	6	0	6	4	
4	III	Core 9	19UENC41	History of English Literature II	5	0	5	4	
4	III	Core 10	19UENC42	Poetry	4	0	4	4	
4	III	Allied	19UENA41	Children Literature	3	0	3	3	
4	III	SBS	19UENS41	Communication Techniques in English	4	0	4	2	
4	IV	NME	19UNEN4A	Honing Communication Skills in English	2	0	2	2	
4	IV		19UNEN4B	Mass Communication					
4	IV	Common	19UCDE41	Computers for Digital Era	0	0	2	1	
4	V	Extension Activity	19UNCC41/19U NSS41/19UYRC 41/19URRC41/1 9UPESY41/19U CCC41/19USS 41/19UCGC41	Extension Activity NCC/NSS/YRC/RR/PESY/ CCC/SSS/CGC				1	
				Sub Total	30		30	25	
5	III	Core 11	19UENC51	Fiction	5	0	5	3	
5	III	Core 12	19UENC52	Literary Theory and Criticism	6	0	6	4	
5	III	Core 13	19UENC53	Postcolonial Literature	6	0	6	4	
5	III	Core 14	19UENC54	Feminist Writings	5	0	5	3	
5	IV	Skill Based Common	19UPDC51	Personality Development	2	0	2	2	
5	III	Core15	19UENCP51	English for Competitive Examination and Project	6		6	6	
				Sub Total	30		30	22	
6	III	Core 16	19UENC61	Shakespeare	6	0	6	4	
6	III	Core 17	19UENC62	History of English Language & Linguistics	6	0	6	4	
6	III	Core 18	19UENC63	Literature in Translation	6	0	6	4	
6	III	Core 19	19UENC64	Introduction to English Language Teaching	6	0	6	4	
6	III	Elective	19UENE61	Culinary Fiction	6	0	6	4	
			19UENE62	Travel Writing	6	0	6	4	
				Sub Total	30		30	20	
				Total				142	

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UEN – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011

SEMESTER I

Programme: BA	Subject: English
Course Code: 19UP2EA1	Course Title: Part II General English
Category: Language II	Credits: 4
	Hours: 6

Objectives:

- 1. To provide the students with an in-depth knowledge of .English Language
- 2. To get them acquainted with selected classics in Literature
- 3. To improve the communication ability of the students.

Outcomes:

The Students can

- Understand the origin and development of the different genres of literature
- Realize that a field like literature is viable for experimentation in further sub genres

Units	Detailed Syllabus	Hours
1	Prose: Kushwant Singh : The Portrait of a Lady Oliver Goldsmith : The Man in Black John Frazer : Mother Teresa Abdul Kalam : The Power of Prayer	12
2	Poetry: William Shakespeare : Sonnet 116 Oliver Goldsmith : The Village Schoolmaster Conventry Patmore : Toys Robert Frost : The Road Not Taken <u>Ruskin Bond</u> : <u>Do Not Be Afraid of the Dark</u>	12
3	Short Stories: R.K Lakshman : The Golden Frame O Henry : The Last Leaf Anton Chekhov : The Lottery Ticket Ruskin Bond : The Boy Who Broke the Bank	12
4	Grammar Types of Sentences, Nouns – Countable &Uncountable,Verbs Pronouns, Adverbs, Adjectives, Articles, <u>Conjunction</u>	12
5	Language and Study Synonyms , Antonyms & Homonyms, Words often confused, One word equivalent , <u>British English & American English</u>	12

Text Book

S.No	Title of The Book	Author	Edition, Year	Publication
1.	Expression-I	Board of Editors	1 st Edition 2016	Orient Black Swan

Reference Books

S.No	Title of the Book	Author	Edition, Year	Publication
1.	A Text Book Of English Grammar And Usage	Board of Editors	1 st Edition 2016	Mahaam Publishers


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UEN – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011
SEMESTER I

Programme: BA	Subject: English
Course Code : 19UENC11	Course Title: Indian Writing in English - I
Category: Core 1	Credits: 4
	Hours: 4

Objectives

- 1. Makes the students to understand the Indian Culture reflected in Literature.
- 2. To learn the values of Spiritual refinement in human value.

Outcomes:

By completing this course this students can

- 1.Gain awareness about the subtle flavours that distinguish the Indian quotient in English writings from India.
- 2.Acquire knowledge about regional, communal, linguistic and Nation- state tensions and struggles

Units	Detailed Syllabus	Hours
1	Prose M.K. Gandhi : The Gospel Of Non-Violence Jawaharlal Nehru : Tryst With Destiny C. Rajagopalachari : Tree Speaks <u>Sir C. V. Raman</u> : <u>Water the Elixir of Life</u>	10
2	Poetry Rabindranath Tagore : From <i>Gitanjali</i> : The Tame Bird was in a Cage Nissim Ezekiel : Night of the Scorpion A.K.Ramanujan : Small-Scale Reflections on a Great House <u>River</u> Kamala Das : The Old Play House	10
3	Short-Stories R.K. Narayan : Astrologer’s Day Ruskin Bond : The Woman on Platform No.8 Premchand : Idgah <u>Raja Rao</u> : <u>The Cow and the Barricades</u>	10
4	Drama Vijay Tendulkar : Silence! The Court is in Session	10
5	Fiction Mulk Raj Anand : Untouchable	10

Text Books

S.No	Title of The Book	Author	Edition, Year	Publication
1	Selections From Indian Writing in English For Undergraduates	Board of Editors	1 st Edition 2013	New Century Book House
2	Silence! The Court is in Session	Vijay Tendulkar	1 st Edition 2015	Oxford

Reference Books

S.No	Title Of The Book	Author	Edition, Year	Publication
1	Indian Writing in English	K.R Srinivasalyengar	1 st Edition 2012	Sterling Publication
2	Mahatma Gandhi: Non Violence Power In Action	Dennis Dalton	1 st Edition 2012	Columbia University
3	An Astrologer’s Day And Others Stories	R.K.Narayan	1 st Edition 1981	Indian Thought Publishers


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UEN – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011
SEMESTER I

Programme: BA	Subject: English
Course Code: 19UENC12	Course Title: British Fiction
Category: Core 2	Credits: 4
	Hours: 4

- Objectives:**
- 1. To enable them to understand the multicultural context of English Language and Literature.
 - 2. To deal with the impact factors of ancient languages.

- Outcomes:**
- Completing this course will make the Students
- 1.Acquire an exposure to classics in fiction and differences between various types of novels.
 - 2.Be familiar with major literary works by British Writers in the field of fiction.

Units	Detailed Syllabus	Hours
1	Unit I Henry Fielding : Joseph Andrews Virginia Woolf : To The Light House	10
2	Unit II Sir Walter Scott : Kenilworth Daniel Defoe : Robinson Crusoe	10
3	Unit III Charles Dickens : Oliver Twist	10
4	Unit IV Thomas Hardy : Far From The Madding Crowd	10
5	Unit V Dorris Lessing : The Grass is Singing	10

Text Books

S.No	Title Of The Book	Author	Edition, Year	Publication
1	Joseph Andrews	Henry Fielding	1 st Edition 2011	UBS Publisher
2	Oliver Twist	Charles Dickens	1 st Edition 2013	UBS Publisher
3	Kenilworth	Sir Walter Scott	1 st Edition 1984	Macmillian India Publisher

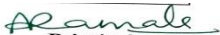
Reference Books

S.No	Title Of The Book	Author	Edition, Year	Publication
1	To The Lighthouse: The Original Holograph Draft	Virginia Woolf	1 st Edition 1983	University Of Toronto Press


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UEN – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011
SEMESTER I

Programme: BA	Subject: English
Course Code: 19UENC13	Course Title: Australian Literature
Category: Core 3	Credits: 4
	Hours: 4

- Outcome:**
- 1. To impart the knowledge of colonial expansions enacted by the British regime
 - 2. To make the students understand the east-west cultural conflicts.

- Outcomes:**
- Taking this course the children can
- 1. Interpret, analyze and discuss contemporary Australian Writing within a wider literary and historical context.
 - 2. Understand and successfully deploy a range of terms and concepts integral to literary styles.

Units	Detailed Syllabus	Hours
1	Prose Sally Morgan : A Black Grandmother Dick Roughsey : Faces of White Pipe Clay School Days David Malouf : From Remembering Babylon	10
2	Poetry DorothyHewatt : From Testament MudroorooNargin (Colin Jackson) : They Give Jacky Rights Silvana Gardner : Old Girl Kevin Gilbert : Mister Man Judith Wright : <u>The Harp And The King</u>	10
3	Short Stories: Tim Winton : Neighbours Barbara Baynton : The Chosen Vessel Henry Lawson : The Drover’s Wife Patrick White : <u>Dead Roses</u>	10
4	Drama Jack Davis : Kullark (Home)	10
5	Fiction Kate Grenville : The Secret River	10

Text Books

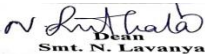
S.No	Title of The Book	Author	Edition, Year	Publication
1	The Arnold Anthology Of Post-Colonial Literature Unit : 1,2,3	John Theme	1 st Edition 1996	Arnold Publications

Reference Books

S.No	Title of The Book	Author	Edition, Year	Publication
1	Australian Literature	Board of Editors	1 st Edition 2017	Angel Publishers
2	The Drover’s Wife	Henry Lawson	1 st Edition 2009	Gruppo Editorial L’Espresso


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UEN – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011
SEMESTER I

Programme: BA	Subject: English
Course Code: 19UAEN11	Course Title: Social History of England
Category: Allied	Credits: 3
	Hours: 4

- Objectives:**
- 1. To gain the knowledge of history of England.
 - 2. To make the students understand the relationship of literature with different ages

- Outcomes:**
- Completing this course the students will be able to
- 1. Be exposed to the chronicles of England and to be cognizant with their evolution.
 - 2. Be exposed to the ages of England and its impact on literature.

Units	Detailed Syllabus (All Units Of Same Size And Duration)	Hours
1	Unit I A Brief Outline of British History The Renaissance The Reformation The Stuart Age	12
2	Unit II The Reglion of England The Elizabethan Theater The Civil War and its Social Consequences	12
3	Unit III Puritanism RestorARATION of England Coffee – House Life in London The Age of Queen Anne	12
4	Unit IV The Industrial Revolution The Methodist Movement Other Humantarian Movement	12
5	Unit V Effects of The French Revolution The Victorian Age Development of Education In Victorian England The Dawn of the Twentieth Century	12

Text Books

S.No	Title of The Book	Author	Edition, Year	Publication
1	Introduction to the Social History of England	A.G Xavier	2 nd Edition 2013	S. Viswanathan

Reference Books

S.No	Title Of The Book	Author	Edition, Year	Publication
1	The Social History of England	Ashok Padmaja	1 st Edition 2011	Orient Block Swan
2	English Social History. A Survey of Six Centuries	G.M Trevelyan	2 nd Edition 1942	Penguin Publishers


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UEN – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI – 62701
SEMESTER II

Programme: BA	Subject: English
Course Code: 19UP2EA2	Course Title: Part II General English
Category: Language II	Credits: 4
	Hours: 6

- Objectives:**
- 1. To improve their skills as critical readers and thinkers, enabling students to identify an author’s thesis and supporting points and to respond to the writing of both professionals and peers.
 - 2. To improve their skills as writers by including description, narration, and personal elements.
 - 3. To demonstrate skills in analysis, argumentation, and assertion with evidence and synthesis.

- Outcomes:**
The Students can
- 1. Comprehend and think in English.
 - 2. Analyze their vocabulary and communication ability for better productivity, job performance and to develop self-confidence.

Units	Detailed Syllabus	Hours
1	PROSE: 1.Tree Speaks-Rajagopalachari 2.Tiger in the tunnel- Ruskin bond 3. The praise of chimney sweepers- Charles lamb 4.Tolerance –E.M. Forster	12
2	POETRY: 1.Night of the scorpion- Nissim Ezekiel 2.Lucy Gray-William Wordsworth 3.On killing a tree –Gieve Patel 4. A valediction forbidding mourning- John Donne	12
3	ONE ACT PLAYS: 1. Refund-Fritz karinthy 2. The death trap- Saki 3.The pie and the tart-Hugh Chesterton 4. The bishops candle sticks- Norman Mckimaal	12
4	GRAMMAR Tenses, Active, Passive voice, Reported speech	12
5	COMPOSITION: Letter writing (Personal& Official), Developing hints into an essay Dialogue writing, Note making	12

Text Books

S. No	Title of the Book	Author	Edition, Year	Publication
1	Expressions1	Board of Studies	2000	Orient Black
2	Current English Usage	S.M.Gupta	2013	PH Learning Pvt. Ltd
3	A Valediction Forbidding Mourning	John Donne	1981	Florin Press

Reference Books

Reference Books

S. No	Title of the Book	Author	Edition, Year	Publication
1	Textures of English	Board of Studies	2000	Cambridge University Press India pvt Ltd
2	English Grammar: Rules and Usage	Annie Bindra	2016	Notion Press
3	English grammar and composition:complet course	John.E.Warriner, Francis J Griffith	1973	Hard court Brace

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UEN – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011

SEMESTER II

Programme: BA	Subject: English
Course Code : 19UENC21	Course Title: Indian Writing in English - II
Category: Core 4	Credits: 4
	Hours: 4

Objectives

- 1. To introduce the learners the literary tradition in Indian Writing in English
- 2. To provide the learner a feel of native writing in English.
- 3. Analyze literary texts and recognize the limitation of such analysis, especially due to the challenges reading non-western texts in a predominately western academic setting

Outcomes:

The Students can

- 1. Understand their role in bringing about Social awareness and transformation by evaluating the literary, cultural, historical, political impact of works of Indian writers in English.
- 2. Be familiar with the major Indian writers and their monumental works as an independent field of literature.

Units	Detailed Syllabus	Hours
1	PROSE: 1. Kushwant Singh - The Portrait of The Lady 2. AmitavGhosh - A Town by the Sea	10
2	POETRY: 1.Toru Dutt – Our Casuarina Tree 2. Rabindranath Tagore - Playthings 3. JayantaMahapatra – Hunger 4. Sarojini Naidu – Palanquin Bearers	10
3	DRAMA: BadalSarkar – EvamIndrajit	10
4	NOVEL: Arundhati Roy – The God of Small Things	10
5	SHORT STORIES: Rabindranath Tagore – The Man From Kabul Sri Aurobindo – The Golden Bird	

Text Books

S. No	Title of the Book	Author	Edition, Year	Publication
1	Hullabaloo in the Guava Orchard	Kiran Desai	2012	Faber
2	The God of Small Things	Arundhati Roy	2008	Random House Trade paperbacks
3	Toru dutt: Collected prose and poetry	Toru dutt	2006	Oxford University Press

Reference Books

S. No	Title of the Book	Author	Edition, Year	Publication
1	Contemporary Indian Poetry	Lakshmi Raghunandan	2000	In English, StosiusInc/Advent Books Division.
2	Indian Poetry in English: A Critical Study	SangitaPadhi	2016	Atlantic Pub
3	The Portrait Of The Lady	Kushwant Singh	2009	Penguin uk


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SEMESTER II

Programme: BA	Subject: English
Course Code: 19UENC22	Course Title: American Literature
Category: Core 5	Credits: 4
	Hours: 4

Objectives:

- 1. To give the learner an understanding of American life, Values and culture through literary works
- 2. To broaden the learner’s appreciation of literature
- 3. To identify the key features of prose & poetry

Outcomes:

- Completing this course will make the Students
- 1. Acquire Knowledge about American literature, cultural themes, Literary periods and key artistic features.
 - 2. Understand the various aspect of American society through a critical examination of the literary text representing different periods and cultures.

Units	Detailed Syllabus	Hours
1	PROSE: 1. Louis Fischer – Gandhi and the Western World 2. Martin Luther King – I Have a Dream	10
2	POETRY: 1. Edgar Allen Poe: a) The Raven b) The Haunted Palace 2. Walt Whitman – Song of Myself 3. Emily Dickinson-a) Hope’ is the thing with feathers b) Success is Counted Sweetest 4. Ralph Waldo Emerson – a) Loss and Gain b) Days 4. Robert Frost - a) After Apple Picking b) West Running Brook	10
3	NOVEL : 1. Herman Melville – Moby Dick 2. F. Scott Fitzgerald – The Great Gatsby	10
4	DRAMA: 1. Arthur miller – All My Sons 2. Tennessee Williams – A Streetcar Named Desire	10
5	Short Stories: 1. Edgar Allan Poe – The Fall of the House of Usher 2. O’ Henry- The Cop and Anthem	10

Text Books

S. No	Title of the Book	Author	Edition, Year	Publication
1	Justice	John Galsworthy	2015	Create space Independent Pub
2	The Poems of Emily Dickinson: Reading Edition	R.W. Franklin	2005	Belknap Press: An imprint of Harvard University Publication
3	Catch -22	Joseph Heller,	2005	Suddeutschezeitung/bibliothek

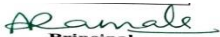
Reference Book

S. No	Title of the Book	Author	Edition, Year	Publication
1	Raven	Gustave Dore Edgar Allen Poe	2013	Courier Corporation
2	The Poetry Of the Robert Frost: The Collected Poems	Robert Frost	2002	Henry Holt and Company
3	A Street Car Named Desire	Tennessee Williams	1947	Ethel Barry more Theatre


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UEN – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011

SEMESTER II

Programme: BA	Subject: English
Course Code: 19UENC23	Course Title: English Grammar and Usage
Category: Core 6	Credits: 4
	Hours: 4

Objectives:

- 1. To enhance the communicative competence by improving the grammatical skills
- 2. To strengthen the writing skills by augmenting the grammatical skills
- 3. To enable the students to use English correctly and confidently.

Outcomes:

Taking this course the children can

- 1. Use basic grammatical structures in short conversation and discussions.
- 2. Gain proficiency in English language.

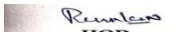
Units	Detailed Syllabus	Hours
1	The word-uses The Nouns-kinds- Number-Gender-Compound nouns-forms of the Genitive. Pronouns, Adjectives-Kinds-formation with affixes, Adverbs: Kinds-formation-functions-uses Prepositions: Simple and compound preposition; those accompanying verbs, adjectives and nouns, Conjunction: Coordinating, correlatives and subordinating.	10
2	The Verb: Transitive and intransitive and linking-Usage, Phrasal verbs Auxiliaries: Primary and models, Concord: Subject-Verb agreement	10
3	The Sentence: Kinds of Sentences, Formation of Negatives, Question Tags	10
4	Tenses: Forms and uses Verb forms, Non-Finites: Present and Past Participles – Uses Infinitives and Gerunds – Uses	10
5	Active and Passive voices, Indirect speech, Transformation of Sentences Degrees of Comparison	10

Text Books

S.NO	Title of the Book	Author	Edition, Year	Publication
1				
2				
3	English Grammar and Usage Spoken English and Grammar An English :comprehending the principles and rules of the language	Board of Studies N.S. Reddy Lindley Murray	2016 2016 1808	Mahaam Publishers J. Johnson T.Wilson

Reference Books

S. No	Title of the Book	Author	Edition, Year	Publication
1	English Grammar Reference Book: Grammar and Error Correction Guide and Phrasal Verb book	Jacqueline Melvin	2015	Farlex
2	An English Grammar	W.M.Baskelvill	2012	Tradition
3	Advance English Grammar: A linguistics Approach	Iise Departure	2012	A&C Black


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SEMESTER II

Programme: BA	Subject: English
Course Code: 19UE NA21	Course Title: Literary Forms and Devices
Category: Allied	Credits: 3
	Hours: 4

Objectives:

- 1. To explore works of literature classified by form.
- 2. To explore issues and questions that arise in connected with literary forms.
- 3. To introduce the various genres and forms of literature.

Outcomes:

Completing this course the students will be able to

- 1. Understand the origin and development of the different genres of literature
- 2. Realize that a field like literature is viable for experimentation in further sub genres.

Units	Detailed Syllabus (All Units Of Same Size And Duration)	Hours
1	Subjective-Lyric, Elegy, Ode, and Sonnet, Ballad, Idyll, Satire, Allegory, Hiku	12
2	Figures of Speech	12
3	Tragedy, Comedy, Tragic-Comedy and Melodrama,One Act Play, The Dramatic Monologue, The Essay, Short Story,	12
4	Feminism, Aestheticism, Eco Criticism, Expressionism, Didacticism	12
5	Biography, Autobiography, Travelogues	12

Text Books

S.No	Title of The Book	Author	Edition, Year	Publication
1	A Background to the study of English Literature	B. Prasad	2011	Macmillan
2	Literary forms	K.R.Ramachandran Nair	2010	Emerald publication
3	English Literature: Writers and Literary Forms	Helen Hopkins	1924	Globe Book Company

Reference Books

S.No	Title Of The Book	Author	Edition, Year	Publication
1	A key to literary Forms and Terms	Sudhir k Arora	2008	Prakash Book Depot
2	A Companion To Literary Forms	Padmaja Ashok	2015	Orient Black swan pvt.ltd
3	A Glossary of Literary Terms	M.H Abrams	1971	Macmillan India Limited


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UEN–BOS–SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211 SEMESTER III

Programme: BA	Subject: English
Course Code: 19P2EA3	Course Title: General English-III
Category: Language II	Credits:4 / Hours : 6

Objectives:

1.
- To expose students to good English prose and poetry, and to inculcate in them humanistic values.
2.
- To enable the learner to communicate effectively and appropriately in real life situation.

Units	Syllabus	Outcomes	Hours
I	Poetry 1. Emily Dickinson - A Bird Came Down the Walk 2. William Collins - Ode to Evening 3. A.K. Ramanujam - Ecology	The students can 1. be empowered to read, appreciate and critically evaluate poetry 2. develop their own creativity and enhance their writing skills.	12hrs
II	Prose 1. Ruskin Bond - The Eyes Have It 2. Rohini Godbole - Lilavathi's Daughter: Edavaleth Kakkat Janaki Ammal 3. Sumit Kumar - Sister Nivedita (Famous Biographies for Children)	The students can 1. comprehend and think in English 2. understand text in their cultural and historical context	12hrs
III	Short Stories 1. Sinclair Ross - The Lamp at Noon 2. Katherine Mansfield - The Doll's House 3. Anton Chekhov - Misery	The students can 1. analyse their own life situation with the story and characters 2. enjoy writing a short story	12hrs
IV	Grammar Gerund, Infinitives, Punctuation, Idioms and Phrases, Simple, Compound and Complex Sentences	The students can 1. analyze their vocabulary and communication ability for better productivity 2. contribute to their overall personality development by improving their grammar	12hrs
V	Language Study and Communication Skills Book or Movie Review, Report Writing, Verbal and Non-Verbal Communication, Telephone Skills, E-mail Writing	The students can 1. develop their writing skills in the language 2. develop intellectual, personal and professional abilities through effective communicative skills	12hrs

Text Books:

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Enlightening English Prose	Prof.K. Natarajan	2011 (1)	New Century Book House
2.	Essential English Grammar and Communication Skills	Raymond Murphy	2000 (2)	Cambridge University Press
3.	Sister Nivedita	Sumit Kumar	2016 (1)	Prabhat Prakashan House.

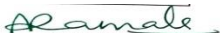
Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Textures of English	Rajeevan	2010 (1)	Cambridge University Press
2.	Communication Skills for Professionals and Students	Dr.Amitabh Dwivedi	2019 (1)	India Pvt Ltd Notion Press


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UEN-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211 SEMESTER III

Programme: BA	Subject: English
Course Code : 19UENC31	Course Title: History of English Literature – I
Category: Core 7	Credits: 4/ Hours : 5

Objectives

1.
- To perceive a chronological survey of the major writers and their writings that have contributed to the development of English Literature.
2.
- To comprehend the outline of English literature based on the three important aspects of England namely Political, Religious and Social.

Units	Syllabus	Outcomes	Hours
1	The Age of Chaucer (1340-1044) From Chaucer to ‘ Tottel’s Miscellany’ (1400-1557)	The students can 1. get an insight about the Medieval world 2. gain full-fledged knowledge about the origin and background of English literature, political condition, war between England and France during Chaucer’s period	12hrs
2	The Development of Drama to 1561 The Age of Shakespeare – Non Dramatic Verse, Drama and Prose	The students can 1. be familiar with the classification of dramas 2. gain more knowledge about the theatres and their formation, settings, and versatility of the characters	12hrs
3	The Age of Milton- Milton, Other Poets and Prose Writers.	The students can 1. know about the bourgeois Revolution and Restoration which is the major impact on English Literature 2. get the knowledge about the Metaphysical Poets and their unique functions on poems.	12hrs
4	The Age of Dryden- Verse, Prose and Drama	The students can 1. understand the major writers and literary works of the Period 2. explore on the history and theory of place, sexuality, gender, religion, and politics in the major works of John Dryden, John Wilmot and the Earl of Rochester, and Aphra Behn.	12hrs
5	The Age of Pope – Verse, Prose and Drama	The students can 1. be aware of socio-political milieu of Augustan age 2. study the birth of fiction.	12hrs

Text Books:

S.No	Title	Author/s	Year of [Edn]	Publisher/s
1.	An Outline History of English Literature	William Henry Hudson	2015 (1)	Maham Publishers

Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher/s
1.	History of English Literature: Traversing the Centuries.	Aditi Chowdhry and Rita Goswami	2014 (1)	Orient Blackswan Pvt Ltd


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UEN-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211 SEMESTER III

Programme: BA	Subject: English
Course Code : 19UENC32	Course Title: Subaltern Studies
Category: Core 8	Credits: 4/ Hours : 4

- Objectives:
- To familiarize the students with the concept of subalternity in literature and makethemaware
 - To trace the significance of economy, politics, gender, class, caste, and religion subalternity found inliterature

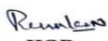
Units	Syllabus	Outcomes	Hours
1	Prose 1.David Ludden - “A Brief History of Subalternity” 2.Gayatri ChakravortySpivak - “Can the Subaltern Speak?” 3.Eleanor Zelliot – Dalit Sahitya: The Historical Background	The students can 1. trace the subalternstudy 2. comprehend the writers’ point of view on subalternstudy	12hrs
2	Short Story Mahasweta Devi- Draupadi	The students can 1. studyDraupadi which is a story about DopdiMehjen, a woman of strong mind defied the shame associated with sexual abuse, which is relevant to Indiatoday. 2. appreciate Devi’s representation of Dopdi. Devi is able to present voices and perspectives otherwise unspoken and unheardof.	12hrs
3	Autobiography Bama- Karukku	The students can 1. understand the flesh and blood genre of historical and familyrealism. 2. feel Bama’s experience as a Dalit Christian and how Dalits are segregated in all theinstitutions	12hrs
4	Drama Mahesh Dattani - Final Solutions	The students can 1. viewDattani represents the female characters are not a shadow ofmale. 2. feel the voice of women infamily, society, professional life and personal relationship	12hrs
5	Fiction Mulk Raj Anand - Two Leaves and a Bud	The students can 1. come-across the oppression of the poor labourers 2. understand the coolie class whoworks hard to attain his/hergoal	12hrs

Text Books:

S.No	Title	Author/s	Year of [Edn]	Publisher's
1	Karukku	Bama	2012 (2)	Oxford India
2	Final Solutions	Dattani Mahesh	2016 (2)	Penguin Books
3	Two Leaves and a Bud	Mulk Raj Anand	1954 (1)	Liberty Books
4	“ Draupadi” Breast Stories. Translated by <u>Gayatri</u> ChakravortySpivak	Mahasweta Devi	2014 (1)	The Seagull Books

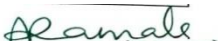
Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1	Reading Subaltern Studies: Critical History, Contested Meaning and the Globalization of South Asia (Anthem South AsianStudies	David Ludden	2002 (1)	Anthem Press (February 1, 2002)
2	Subaltern Theories: Literary Criticism and Theory	RanajitGuha, Gayatri ChakravortySpivak, DipeshChakravarty	2005 (1)	MHRD-UGC ePGPathshala


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UEN-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211 SEMESTER III

Programme: BA	Subject: English
Course Code : 19UENA31	Course Title: Commonwealth Literature
Category: Allied	Credits:3 / Hours : 3

Objectives:

1.
- To gain a detailed study of the commonwealth writers and theirworks.
2.
- To know about the culture, and the historic context of eachstory.

Units	Syllabus	Outcomes	Hours
1	Poetry 1.Gabriel Okara(South Africa) – Onceupon a Time 2.David Diop(France- West Africa) - Africa 3.Mervyn Morris (Jamaica) - Judas 4.Nancy Morejon (Cuba) - BlackWoman	The students can 1. empathize with the works of ‘ the VoicelessPeople’ 2.understand and appreciate poetry as a literaryartform.	9hrs
2	Prose 1.Luis Alberta Urrea (America- Mexico)- Across the Wire (Preface) 2.A.J.Cronin (Scotland) - The Best Investment I Ever Made	The students can 1. examine the major historical and cultural developments of colonial America 2. identify and discuss theissues, conflicts, preoccupations, and themes in Scottish literature	9hrs
3	Short Stories 1.O’ Henry (America) -The Gift of Magi 2.Alice Munro (Canada) - Red Dress	The students can. 1. understand how a woman is supposed to behave and what are her expectations from society 2. have a better understanding of story elements and why theyare important in everystory	9hrs
4	Fiction Hermann Hesse (Germany) - Siddhartha	The students can 1. understand how society and culture played a significant role in the lives and career of the writers of theage 2. expose different cultures, myths, and histories of various nations throughfiction.	9hrs
5	Drama John Galsworthy (British) - Strife	The students can 1.understand the realistic and psychological conflicts and dilemma of early 20 th Century and domineering people in England 2. analyse the caste feeling of Capital pitted the cast feeling of Labour in the drama.	9hrs

Text Books

S.No	Title	Author/s	Year of [Edn]	Publisher\s
1.	Strife	John Galsworthy	1909 (1)	A Public Domain book
2.	Hermann Hesse	Siddhartha	1951 (1)	New Directions house (US)

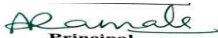
Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher\s
1.	An Anthology of Commonwealth Poetry	C D Narasimhaiah	1990 (1)	Macmillan Publishers Lmt
2.	Introduction to Herman Hesse’s Siddhartha	Donald Mcclory	1998 (1)	Picador Press London


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UEN–BOS–SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211 SEMESTER III

Programme: BA	Subject: English
Course Code: 19UENS31	Course Title: Basics of Phonetics
Category: Skill Based	Credits: 4/Hours : 4

Objectives:

1.
- To aim at familiarizing the students with phonetics and phonetic symbol of Englishlanguage
2.
- To understand the system of sound and soundcombination.

Units	Syllabus	Outcomes	Hours
1	1.Importance of Pronunciation 2.Kinds of Pronunciation	The students can 1. understand how pronunciationenhances personality 2. produce the basic sounds without mother tongueinfluence	12hrs
2	1.Organs of Speech 2.Vowels 3.Consonants 4.Diphthongs	The students can 1. explain the major organs of speechproduction and demonstrate how they are involved in communication 2. describe the structure of the speech organs and their function in varying the speechsymbol	12hrs
3	1.Phonemes 2.Morphemes	The students can 1. know how sounds help distinguish one word or meaning fromanother 2. understand how various letters andletter combinations known as graphemes are used to represent the sounds	12hrs
4	1.Syllable 2.Stress 3.Intonation Changes	The studentscan 1. provide an account of main dimensions of voice, pitch, andvoicequalities 2. distinguish different word stresses,inflections, intonations and voicemodulation	12hrs
5	Transcription – Practice in phonemic transcription of simple words and sentences	The students can 1. thrive with the wider knowledge of pronunciation and the transcriptionsymbols 2. see how transcription plays an important role for several subfields of speechtechnology	12hrs

Text Books:

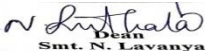
S.No	Title	Author/s	Year of [Edn]	Publisher's
1	A Practical Introduction to Phonetics	J.C. Catford	2001 (3)	Oxford University Press
2	A Manual of English Phonetics and Phonology: Twelve Lessons with an Integrated Course in Phonetic Transcription	Paul Skandera,Peter Burleigh	2011 (2)	Gunter NarrVerlag Publication
3	Introductory Phonetics and Phonology of English	IyabodeOmolarDaniel	2011 (1)	Cambridge Scholars Publishing

Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1	The Morpheme: A Theoretical Introduction	David Embick	2015 (1)	Walter de Gruyter GmbH & Co KG Publication
2	Intonation and Stress: Evidence from Hungarian	L. Varga	2002 (1)	Palgrave Macmillan Publication


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Programme: UG	Subject: English
Course Code: 19UNEN3A	Course Title: An Introduction to Journalism
Category: NME	Credits: 2 / Hours: 2

Objectives:

1. To readand understand journalism as a discipline of collecting, analyzing, verifying and presenting information regarding currentevents.
2. To make students aware of the avenues open inmedia

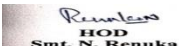
Units	Syllabus	Outcomes	Hours
1	1.Introduction to Journalism 2.Principles of Journalism 3.Kinds of Journalism 4.Importance	The students can 1. explain and appraise the story and structure of different channels such as radio, television, online news sites, and printed newspapers andmagazines 2. gain the knowledge about photo journalism and news agenciesin specializedareas	6hrs
2	News Reporting and Editing Practices: 1.Reporting Concepts and Attributes 2.News Writing Structure 3.Reporting News Stories to News Papers, Organizations, Headlines	The students can 1. be motivated towards placements as newsreporters 2. have an idea of how to createstories and breaking news through different channels	6hrs
3	Writing for Print: News Papers, Magazines, Content Writing Editorials, Feature Articles, Interviews, Profiles, Reviews and Criticism	The students can 1.be exposed to the social importance and responsibilities of the fields of mass communication and massmedia 2. understand the concepts andprocesses of production for radio and Television	6hrs
4	Writing for New Media: 1.Online News Papers 2.Blogs 3.Cell PhoneCommunication 4.Email	The students can 1. write and edit content for the designated mediaplatforms 2. be acquainted withvisual communication skills	6hrs
5	1. Qualities of a GoodNews 2. News Reporter’s Responsibilities, Challenges andEthics	The students can 1. gain knowledge about newswriting and editing inmedia. 2. understand what news is all about and have an insight into the working of various newspersons.	6hrs

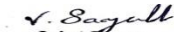
Text Books:

S.No	Title	Author/s	Year of [Edn]	Publisher’s
1.	Journalism Principles and Practice	Tony Harcup	2015 (2)	Sage publications Ltd
2.	The Handbook of Journalism Studies	Karin Whal-Jorgensen, Thomas Hanitzsch	2019 (2)	Routledge Publications

Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher’s
1.	Editing and Design	Horald Evans	1972 (1)	Heinemann Publication
2.	Mass Communication in India	Keval J. Kumar	2012 (4)	Anubha Printers


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UEN – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011
SEMESTER III

Programme: BA	Subject: English
Course Code : 19UNEN3B	Course Title: Developing Communication Skills
Category: Core: NME	Credits: 2
	Hours: 2

Objectives

- 1. To give a clear and systemic understanding of the national changes and developments that influenced British Literature.
- 2. To familiarize the students about the histori

Units	Detailed Syllabus	Out comes	Hours
1	Language and Communication Linguistic Communication Importance of Communication	Students can 1. understand the role of communication in personal& professional. 2. develop awareness of appropriate communication strategies.	10
2	Non – Verbal Communication Personal Appearance Poster Facial Expression	Students can 1. learn the advantage and disadvantage of using gestures and facial expressions. 2. Interpret the actions of others during conversation.	10
3	Seminars and Conferences Types of Discussion Groups Regulating Speech Evaluating Oral Presentation	Students can 1. engage in high level debates and refine your ideas. 2. hear about the latest research	10
4	Style Importance of Professional Writing Features of written Communication Choice of Words and Phrases	Students can 1. increase their written communication skills. understand the phrases.	10
5	Formal Reports Definition Types Structure	Students can 1. know the different type of formal report. 2. learn the structure of the formal reports.	10

Text Books

S.No	Title of The Book	Author	Edition, Year	Publication
1	Developing Communication Skills	Krishna Mohan & Meera Banerji		Maham publishers.

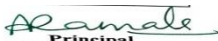
Reference Books

S.No	Title Of The Book	Author	Edition, Year	Publication
1	History of English Literature: Tranersing the centuries Centu	Aditi Chowdhuri and Rita Gowswamy		Orient Blackswan pvt.ltd


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UEN-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211 SEMESTER IV

Programme: BA	Subject: English
Course Code: 19P2EA4	Course Title: General English- IV
Category: Language II	Credits: 4/ Hours : 6

Objectives:

1.
- To enable the learners to communicate effectively and appropriately in real life situation.
2.
- To revise and reinforce structure already learnt.

Units	Syllabus	Outcomes	Hours
1	Poetry 1.Sarojini Naidu- Conquest 2.John Donne - Song 3.Michael Ondaatje- The Cinnamon Peeler 4.W.H. Auden - The More Loving One	The students can 1. familiarize with the multi-cultural poetry 2. get the aesthetic sense of emotions, fondness, passion, and tenderness through the different nationality poets	12hrs
2	Prose 1.Srimath Swami Chidbhavananda - The Student (Chapter-V) 2.Rohini Godbole- Lilavathi's Daughter: Dharshan Ranganathan 3.M. K. Gandhi - The First Case	The students can 1. understand the role of friendship and its trustworthy 2. get the knowledge about women scientists who ever shown the ability of women empowerment	12hrs
3	Drama 1.Shakespeare – The Merchant of Venice Act IV (The Trial Scene)	The students can 1. get alert from the bad charges such as envy, revenge, etc., and they can change themselves towards good deeds 2. understand the purist form of love and its immortality through this cultural drama	12hrs
4	Grammar Transformation of Sentences, American and British English, Spotting the Errors	The students can 1. learn the types of sentence and its transformation without any error 2. identify the difference between American English and British English	12hrs
5	Communication Skills Interview, Group Discussion, Agenda writing, Minutes writing, Resume writing	The students can 1. gain ideas to competitive skills 2. develop their creative thinking and writing	12hrs

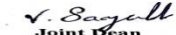
Text Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1	A Garland of Poems	Dr. Chandra Paul	2010 (1)	Harrows Publications
2.	Sarojini Naidu's Poetry	Satvinder Kaur	2003 (1)	Sarup & Sons Publications
3.	The Complete Works of William Shakespeare	David Bavinton	1996 (7)	Longman Publishing group
4	Indian National Education	Srimat Swami Chidbhavananda	2017 (9)	Sri Ramakrishna Tapovanam Publications

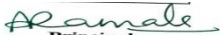
Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Textures of English	Rajeevan	2009 (1)	Cambridge University Press India Pvt Ltd.
2.	Communication Skills for Undergraduates	Dr. T.M. Farhathullah	2005 (1)	RBA Publications


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UEN–BOS–SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211 SEMESTER IV

Programme: BA	Subject: English
Course Code: 19UENC41	Course Title: History of English Literature – II
Category: Core 9	Credits: 4 / Hours: 5

Objectives:

1.
- To give a clear and systemic understanding of the national changes and developments that Influenced BritishLiterature.
2.
- Tofamiliarizethestudentsaboutthehistoricalmovementsthatinfluenced thetransformationof the literary tastes andstandards.

Units	Syllabus	Outcomes	Hours
1	The Age of Johnson- General Prose, the Novel & the Verse	The students can 1. understand the literary background of EnglishLiterature 2. familiarizewith the major movements in the period of Dr Johnson and be familiar with the Prose and novels in the age ofDr.Johnson.	12hrs
2	The Age of Wordsworth- The Older Poets & The Younger Poets	The students can 1. discuss how literature also influences the social and political history of eachperiod 2. classify all the major literary genres in the Age of Wordsworth the nature’spoet	12hrs
3	The Age of Tennyson – Verse, General Prose and Novel	The students can 1. get exposure on the chronicles of England and to be cognizant with their evolution of TennysonAge 2. be conversant with the chronicles and memoir of conspicuous legends of theage	12hrs
4	The Age of Hardy	The students can 1. acquire the knowledge of the important literary genres and significant literary movements in the Age ofHardy 2. gain knowledge in the developmentof English literature from 19th century to 20th century	12hrs
5	The Present Age	The students can 1. gain the literacy about the worldwars. 2. learn an abrupt break away from theold ways of interacting with theworld	12hrs

Text Books:

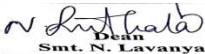
S.No	Title	Author/s	Year of [Edn]	Publisher's
1	An Outline History of English Literature	William Henry Hudson	1912 (1)	MahamPublisers
2.	A History of English Literature	AditiChowdhury and Rita	2011 (1)	Orient Blackswan Pvt. Ltd.

Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	The Short Oxford History of English Literature	Andrew Sanders	1994 (1)	Oxford University Press
2.	History of English Literature	William Vaughn Moody	1902 (1)	C. Scribner’s Sons
3.	The Oxford Illustrated History of English Literature	Pat Rogers	1987 (1)	Oxford University Press


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UEN-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211 SEMESTER IV

Programme: BA	Subject: English
Course Code : 19UENC42	Course Title: Poetry
Category: Core 10	Credits: 4 / Hours: 4

Objectives:

1.
- To make the learners familiar with EnglishPoetry
2.
- To analyze the various elements of poetry such as diction, tone, genre, imagery, figures of speechetc...

Units	Syllabus	Outcomes	Hours
1	Indian Poetry 1. Vikram Seth(India)-Across 2. Nissim Ezekiel(India) - GoodbyeParty for Miss Pushpa. T 3.S.Shiv K.Kumar(India) - Indian Women	The students can 1. enable them to understandthe thoughts and imaginations contained in Indian poems 2. analyse the rhyme &rhythm and the Styles of Indian poems, exclusively about the different themes thatmak them to strengthen themselves	12hrs
2	British Poetry 1.Rossetti(English) - Blessed Damoze2.Hopkins(English) - The Wind Hover 3.W. B.Yeats(Irish) - The StolenChild	The students can 1. show familiarity with major literary works by English writers in the field ofpoetry 2. learn various inspiringundertones oflife	12hrs
3	American Poetry 1.RobertBurns(Scott) - A Red,Red, Rose 2.Langston Hughes(America)- Let America be America Again 3.Joyce Carol Oates(America) - Kite	The students can 1. analyse the life style ofAmerican people 2. examine some common themesof Americanpoetry	12hrs
4	Canadian Poetry 1.Margaret Atwood (Canada) - Morning in the Burned House 2.David Zieroth(Canada)- A Minor Talent 3.Wilfred Campbell (Canada) The Winter Lake	The students can 1. understand the phases of Canadian poetic culture 2. understand Canadianresponse towardsnature	12hrs
5	African Poetry 1.Gabriel Okara(Nigeria) - Telephonic Conversation 2.SamBradley(English) -African inthis Different Land 3.Derek Walcott(Africa) - A Far cryfrom Africa	The studentscan 1. acquire the knowledge of African’s past, present and possiblefuture 2. examine truthful and fruitfulhuman experiences through Africanpoems	12hrs

Text Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Floral Gems of Poems	Dr. G. Ruby Davaseeli& Dr. R. Shanthi	2016 (1)	New Century Book house
2.	An Anthology ofPoems in NewLiterature	P.S.S. Avadaipappan	2015 (1)	New Century Book house

Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Vintage Wine, Collection of Poems	Board of Editors	2016 (1)	New Century Book house
2.	Heard Melodies	Dr. V. Premkumar	2014 (1)	New Century Book house


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UEN-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211 SEMESTER IV

Programme: BA	Subject: English
Course Code: 19UENA41	Course Title: Children Literature
Category: Allied	Credits: 3/ Hours : 3

- Objectives:
1. To introduce the students to the serious academic study of children's literature.
 2. To explore how writing for children redirects the way in which genres, texts, and new techniques interact creatively with childhood and youth culture.

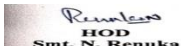
Units	Syllabus	Outcomes	Hours
1	Poetry 1. Robert Louis Stevenson (Scotland) - My Shadow 2. Ted Hughes (English) - Jaguar 3. Roald Dahl (British) - Little Red Riding Hood and the Wolf	The students can 1. develop their curiosity and wonder about life 2. know about the struggling life of the animals	9hrs
2	Prose 1. Swami Vivekananda (India) - The Secret of Work 2. Swami Chidbhavananda (India) - The Indian National Education 3. Swami Vivekananda (India) - Sisters and Brothers of America	The students can 1. understand the concept that the work is worship 2. recognize the importance of education	9hrs
3	Short Stories Vishnu Sharma (India) - Panchatantra (Five Stories) The Monkey and the Crocodile, The Stork and Crab, The Elephant and the Mice, The Loyal Mongoose, The Tortoise and Geese	The students can 1. understand the value of security, prosperity, friendship and everlasting joy 2. learn moral values	9hrs
4	Drama J.M. Barrie (Scott) - Peter Pan -	The students can 1. grasp the importance of family and its moral teachings 2. evaluate the moral triumph of good over evil	9hrs
5	Fiction J.K. Rowling (British) - Harry Potter & the Philosopher's Stone	The students can 1. seize the fact that friendship and loyalty beats wealth and status 2. realize the truth that standing up for yourself is tough, but rewarding	9hrs

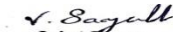
Text Books:

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Harry Potter and the Philosopher's Stone	J.K Rowling	1997 (1)	Bloomsbury Publishing company Ltd.,
2.	The Panchatantra	Arthur Ryder	1925 (1)	Jaico Publishing House
3	Peter Pan	J.M. Barrie	1928 (1)	Oxford University Press

Reference Books

S.No	Title	Author's	Year of [Edn]	Publisher's
1.	Mahabharata: the Philosophy of Humanity for the Use of College students	Swami Chidbhavananda	1995 (1)	Sri Ramakrishna Tapovanam Publications
2.	Just So Stories	Rudyard Kipling	1902 (1)	Macmillian Publishers


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Programme: BA	Subject: English
Course Code: 19UENS41	Course Title :Communication Techniques in English
Category: SBS	Credits: 3/ Hours : 4

Objectives:

1.
- To recognize and understand the meaning of grammatical structures in written andspoken forms.
2.
- To establish the importance of teaching the forms, and showing how to use incontest.

Units	Syllabus	Outcomes	Hours
1	Unit I Functional Grammar, Parts of Speech, Tense , Concord, Voice, Articles, Conditionals, Modal Auxiliary Verbs, Word Formation	The students can 1. understand the functions of tenses, concord, articles and verbs which are the basics of parts ofspeech 2. able to form the sentencewith the help of wordformation	12hrs
2	Unit II Punctuation, Discourse Markers, Basic Sentence Patterns, Types of Sentences, Framing Sentences, Clauses and Phrases	The students can 1. understand the functions of punctuations, discourse markers in the formation of sentences 2. frame the sentence withouterror	12hrs
3	Unit III Error Analysis, Reading Skills, Reading Strategies, Listening Comprehension, Contextual Use of Words, Situational Speech	The students can 1. able to analyze the error while reading By using readingstrategies 2. develop individual perspectivesin listeningskills	12hrs
4	Unit IV Presentation Skills- Techniques, Elements, Types	The students can 1. deliver their speecheffectively 2. able to explain their ideas in a clearway	12hrs
5	Unit V Note Making, Summarizing, Continuous Writing, Description, Personal Letters, Business Letters, and Email Writing, Minutes of the Meeting	The students can 1. demonstrate writing and thespeaking process through, invention, organization, drafting, revision, and editing 2. write a polished business letterthrough the layout and also they can deliver their oral presentationprofessionally	12hrs

Text Books

S.No	Title	Author/s	Year of [Edn]	Publisher\s
1.	Effective Technical Communication	M Ashraf Rizvi	2005(1)	Tata McGraw- Hill: New Delhi
2.	English Vocabulary in Use	Michael McCarth and O'Dell Felicity	2004(1)	Cambridge University press.

Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Spoken English for You – Level II	G Radha Krishnan Pillai	1998(1)	Emerald, Publishers Chennai.


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UEN-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211
SEMESTER IV

Programme: BA	Subject: English
Course Code: 19UNEN4A	Course Title: Honing Communication Skills in English
Category: NME	Credits:2 / Hours : 2

Objectives:

1. To define and understand communication and the communication process.
2. To be familiar with the speaking and listening level descriptions.

Units	Syllabus	Outcomes	Hours
1	Self-Introduction, English for Etiquette – Greeting, Introducing, Congratulating, Requesting, Accepting, Apologizing, Gratitude, Accepting, Seeking, Granting, and Declining Permission.	The students can 1. identify the basics of oral communication and practice them in academic, social and professional situations 2. adapt to response for any kind of situation	6hrs
2	Dialogue Building – Formal, Semi-formal and Informal Asking/Giving Directions.	The students can 1. develop oral communication 2. learn the appropriate use of sentences	6hrs
3	Notice, Agenda and Minutes Writing, Designing a Resume	The students can 1. develop the skills of writing agenda and minutes 2. write a resume	6hrs
4	Situational Speeches – Vote of Thanks, Welcome Address, Compering	The students can 1. develop critical and innovative thinking 2. achieve the skill of welcoming, introducing. and thanking	6hrs
5	Group Discussion, Interview Facing Skill, Letter Writing (Five Types)	The students can 1. can face interviews, group discussions skillfully 2. build the art of letter writing	6hrs

Text Books:

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Advanced Skills for Communication in English	V. Jeya Santhi & Dr. R. Selvam	2015(1)	New Century Book House

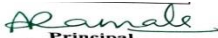
Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Enriching Communication Skills	Dr. S. Ramanathan	2018(1)	New Century Book House


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UEN-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211
SEMESTER IV

Programme: BA	Subject: English
Course Code : 19UNEN4B	Course Title: Mass Communication
Category: NME	Credits: 2
	Hours: 2

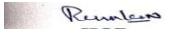
Objectives

- 1. To produce scholar graduates with strong academic knowledge and professional skills so they are prepared to join a media related profession.
- 2. To produce graduates to be leaders of the society with a sense of high morality, advanced skills and insightful attitudes.

Units	Detailed Syllabus	Out Comes	Hours
1	The Mass Media – History, Practices, and Values Functions of the Mass Media Theories of the Press/Media	Students can 1.discuss competing social and commercial constraints upon creations and production of public media messages. 2. acquire knowledge about the various types of theories in Press and Mass media	10
2	Journalism What is Journalism? The Role of the Press	Students can 1.learn the various types of journalism 2. get knowledge about the role and the power of press.	10
3	Cinema The Indian Newsreel Film as a contemporary Art Form	Students can 1.learn the history of short film in the first decade of the 20 th century. 2.get the vivid knowledge about the impact of Cinema on society.	10
4	Radio Indian Broadcasting: The Early Years Radio Formats and Genres	Students can 1.understand the origin of Radio Broadcasting before and after Independence 2.understand the ethics of Radio Format	10
5	Advertising and Public Relations History of Indian Advertising Types of Advertising, Principles of Advertising	Students can 1.understand the role of Advertising and Public Relations 2. learn the various types and ethics in Advertising and Public Relations	10

Text Books

S.No	Title of The Book	Author	Edition, Year	Publication
1	Mass Communication in India	Keval J. Kumar	2009 (35)	Jaico Publishing house


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UEN–BOS–SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211
SEMESTER V

Programme: BA	Subject: English
Course Code :19UENC51	Course Title: Fiction
Category: Core 11	Credits: 3/ Hours : 5

Objectives:

1.
- To create awareness about the power of the novel as a modern literaryform
2.
- Learn the basics of conceptualization of a novel ornovella.

Units	Syllabus	Outcomes	Hours
1	Herta Muller (Germany)- The Hunger Angel	The students can 1. identify the cultural, historical and political aspects of the given fictional work 2. understand how labourers suffered under the conditions of German Concentration Camps	12hrs
2	Amitav Ghosh (India)- The Shadow Lines	The students can 1. understand how people try to achieve freedom 2. understand how freedom influences identity	12hrs
3	Ernest Hemingway(America)- The Old Man and the Sea	The students can 1. know how friendship is celebrated 2. learn emotional and mental endurance	12hrs
4	Nadine Gordimer(South Africa)- Burger’s Daughter	The students can 1. understand the cultural background of Africa 2. understand the concepts of multi culturalism through the novel	12hrs
5	Jane Austen (England) - Emma	The students can 1. study on human relationships 2. study the issues of marriage and social status	12hrs

Text Books

S.No	Title	Author/s	Year of [Edn]	Publisher’s
1.	The Hunger Angel	Herta Muller	2009 (1)	Macmillan Publishers
2.	The Old Man and the Sea	Ernest Heming way	2015 (1)	World Heritage Publishers Ltd
3.	The Shadow Lines	Amitav Ghosh	2005 (1)	First Mariner Books
4.	The Fifth Child	Doris Lessing	2012 (1)	Harper Press
5.	Emma	Jane Austen	2014 (2)	Maple press

Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher’s
1.	A Critical Introduction of The Shadow Lines	Shakti Batra	2016(2)	Surjeet Publications
2.	A Study Guide for Doris Lessing’s The Fifth Child	Gale	2016(2)	George Company Group Lt


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UEN-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211
SEMESTER V

Programme: BA	Subject: English
Course Code:19UENC52	Course Title: Literary Theory and Criticism
Category: Core 12	Credits: 4/ Hours : 6

Objectives:

1. To interpret a literary text on the basis of theory and criticism
2. To reinforce the critical sensibility in students.

Units	Syllabus	Outcomes	Hours
1	Aristotle's - Poetics	The students can 1. learn structure of dramatic theory 2. be familiar with the basic concepts of Aristotle theory of epic and tragedy	12hrs
2	Sir Philip Sidney- An Apology for Poetry (Sidney's reply to Gosson)	The students can 1. understand that poetry rouses the readers towards virtue 2. get a view of Elizabethan England through the eyes of Sidney	12hrs
3	William Wordsworth- Preface to the Lyrical Ballads	The students can 1. understand how far the language of the middle and lower classes of society is adapted to the purpose of poetic pleasure 2. understand that the layman's language helps to assert the universality of human emotions	12hrs
4	I.A. Richards- Four Kinds of Meaning	The students can 1. exposed to reader's response criticism 2. introduced themselves to New Criticism	12hrs
5	Introduction to Structuralism, Introduction to Modernism, Introduction to Eco Criticism and Introduction to Gender Studies	The students can 1. have an overview of various critical theories 2. understand and apply these theories for research	12hrs

Text Books:

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	English Critical Essays: Nineteenth Century	Edmund D. Jones	2019 (2)	Good Press
2.	Twentieth Century Criticism: The Major statements	William J. Handy and Max Westbrook	1974 (2)	Free Publishers
3.	Criticism: The Major Texts	Walter Jackson Bate	2002 (2)	Wolf Den Books

Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	A New Approach to Literary Theory and Criticism	R.S. Malik & Jagdish Batra	2014 (1)	Atlantic Publishers


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SEMESTER V

Programme: BA	Subject: English
Course Code:19UENC53	Course Title: Postcolonial Literature
Category: Core 13	Credits: 4/ Hours : 6

Objectives:

1.
- To understand the features of the Colonial Period through the text
2.
- To understand the changing trends and the emerging themes in literature

Units	Syllabus	Outcomes	Hours
1	Introduction to Postcolonialism Bill Ashcroft, Gareth Griffiths and Helen Tiffin - Postcolonial Studies Key Concepts (pg 168-178)	The students can 1. understand the theory of colonial and post-colonial literature 2. think critically about the texts in relation to post-colonial theory	12hrs
2	Prose 1. Nirad C. Chaudhary (India)- The Eternal Silence of These Infinite Crowds 2. Chimamanda Ngozi Adichie (Nigeria)- We Should all Be Feminists	The students can 1. perceive Indian social behavior 2. understand the author's perception regarding the colonized country	12hrs
3	Poetry 1. A. D. Hope (Australia): Australia 2. Derek Walcott (Saint Lucia) - A City's Death By Fire	The students can 1. recognize variety of cultures and society 2. understand the rhythms, metric and other musical aspects of poetry	12hrs
4	Fiction J. M. Coetzee (South Africa)- Foe	The students can 1. understand the impact on the colonized countries 2. recognize the colonizer and the colonized	12hrs
5	Drama Wole Soyinka (Nigeria) - A Dance of the Forests	The students can 1. comprehend Yoruba cosmology and Nigeria's post-independence political future 2. understand the themes and issues such as power, identity, race and nation	12hrs

Text Books:

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Post Colonial Studies Key Concepts	Bill Ashcroft, Gareth Griffiths and Helen Tiffin	2007 (2)	Routledge Publications
2.	A Dance of the Forests	Wole Soyinka	2018 (2)	Oxford University Press
3.	Foe	J.M.Coetzee	2010 (2)	Penguin Publishers

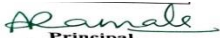
Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Colonial and Postcolonial Literature	Elleke Bochmer	2005 (2)	Oxford University Press


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SEMESTER V

Programme: BA	Subject: English
Course Code: 19UENC54	Course Title: Feminist Writings
Category: Core 14	Credits: 3 / Hours : 5

- Objectives:**
- 1. To expose women’s issues
 - 2. To enable students, understand the dimensions of women’s writing in literature

Units	Syllabus	Outcomes	Hours
1	Poetry 1.Sylvia Plath (America) -Morning Song 2.Kishwar Naheed(Pakistan)- I Am Not That Woman 3.Imtiaz Dharker (British)-Minority 4.Judith Wright (Australia) -Bora Ring	The students can 1. understand the basic concepts of gender issues 2. familiarize with the basic issue of women writing	12hrs
2	Prose Virginia Woolf(British) - A Room of One’s Own(Chapter 2)	The students can 1. demonstrate awareness of cultural and intercultural concerns relating to women’s writing 2. understand the historical development of various women movements across the world in different socio-cultural	12hrs
3	Fiction Namita Gokhale (India) - Gods, Graves, and Grandmothers	The students can 1. understand the power of religious beliefs and the birth of demigods 2. realize the power of women	12hrs
4	Drama George Ryga (Canada)- The Ecstasy of Rita Joe	The students can 1. understand the issues relating to aboriginal people 2. understand the violence of white culture	12hrs
5	Criticism 1.Simone de Beauvoir(French) - Women and the Other (pg 280- 284) 2.The Second Sex - Myth and Reality Chapter (XI)	The students can 1. understand the treatment of women throughout history 2. understand feminism theories through the text	12hrs

Text Books

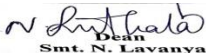
S.No	Title	Author/s	Year of [Edn]	Publisher’s
1.	Myth and Reality: The Second Sex	Simone de Beauvoir	2011 (2)	Oxford University Press
2.	The Ecstasy of Rita Joe	George Ryga	1970 (2)	Talon Books
3.	Gods, Graves, and Grandmother	Namita Gokhale	2020 (2)	Penguin India Books

Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher’s
1	Feminist Theory: A Reader	Wendy Kolmar and Frances Bartkowski	2013(4)	McGraw-Hill Publication


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SEMESTER V

Programme: UG	Subject: English
Course Code: 19UENCEP51	Course Title: Project and English for Competitive Examinations
Category: Core 15	Credits: 6
	Hours: 6

1 Objective:

- 1. To submit a project on new areas which would prepare students for research at higher levels.
- 2. To help the students to gain a practical knowledge of research

Outcomes:

- 1. This project helps the student with a practical knowledge and understanding of literature from different point of views
- 2. This practical research helps the students to analyze complex problems to reach an established conclusion.

Project Guidelines

(For Certificate, Diploma, Advanced Diploma, UG, PG, and MPhil., programmes)

- 1. Duration of the project work shall be for a period of one semester
- 2. Project work shall be carried out under the supervision of a faculty member of the department concerned or from allied department, if the work is of interdisciplinary in nature or with internal or external expert beyond the department as co-supervisor.
- 3. The supervisor allocation shall be made by lot by the end of 4 semester in UG, by the end of 2nd semester in PG (April 1st week) and for MPhil., 15 days after joining the programme. The allocation details may be sent to Autonomous cell by 10th April for UG & PG and for MPhil., 30 days after joining the programme.
 - a. After allocation, the respective supervisors have to conduct orientation/counsel meeting with the assigned candidates about the project with P3 agenda (Participation, Presentation, and Publication) towards career prosperity. Subject Knowledge towards Pure and Applied part may be highlighted for doing the project.
 - b. The HoD shall review the coverage of different fields of the subject amongst the candidates and to see that the students should not focus on particular fields alone.
- 4. The candidates have to study/refer journals/previous works/focus on the proposed topic in the summer vacation and 5-10 titles of proposed project on respective subject (discipline) or on allied subject (interdisciplinary) with economic/scientific/social/local/state/national/global issues may be submitted to the guide by May end.
- 5. The supervisor shall guide the candidates on their choice after having reviewed proposed topics, the mindset and work culture, provided the work is of innovative in nature, affordable and with future prospective. If not satisfied with the proposed topic/due to lack of infrastructure/beyond scope and practicality, supervisor herself shall suggest the field/topic for work. Hard copy of proposed title with objectives in the prescribed format to be submitted to CoE's Office through Dean, Autonomous in the last week of June
- 6. Parent's undertaking/willingness may be obtained in writing by inviting the parents for department level meeting after explaining its importance, guidelines, safety precautions related to outdoor project commitment etc.
- 7. Project period – June to September. Last date for the submission of dissertation is 15th October
- 8. Project Progress Review has to be conducted in 5th July, 5th August and 5th September. Report Card for individual candidates shall be maintained at the department for audit at any time. (Proforma)
- 9. If a candidate fails to submit the dissertation on or before the specified date, she may submit the same on or before 15th November by paying prescribed late fee.
- 10. The evaluation of dissertation will be as per the University/Autonomous norms

The assessment of Project component during the Course and in the End-semester examinations shall be carried out as follows:

CIA (Max: 25 Marks)				End – Semester Examination (Max.: 75 marks)				
Marks for Reviews (Average of the best two of the three compulsory Reviews) (Max.: 25 marks)				Marks for Thesis Evaluation (Max.: 25 marks)		Marks for Viva-Voce Exam. (wit the Deptl. Faculty Member / Course students) (Max.: 50 marks)		Total (Max.)
Review I (Max.)	Review II (Max.)	Review III (Max.)	Average of the best two (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	
25	25	25	25*	12.5	12.5	25	25	75*

* The marks secured may be rounded off to its nearest integer.

11. PG and M.Phil., students should carry out the project individually. UG students may undertake group projects with a maximum of three students in a group. The group may be of interdisciplinary nature combining students from two to three departments with the concern of the respective guides. An undertaking, in this regard, has to be submitted by the group of students with the endorsement by the guides.

12. LATEX procedure shall be followed for Mathematicsprojects.

13. ***GUIDELINES ON THESIS (WITH STATIONERY ECONOMYMEASURES):***

a. Number of Pages (inclusive of prefix andsuffix):

i) V semester Project Maximum 40pages;

ii) VI semester Project Maximum 60pages,

iii) PG Projects Maximum 80 pages; Iv) MPhil., maximum 100pages.

b. Size of the paper A4; Font Times New Roman; Title 14 Capitals/Bold; Subtitle 12 Capitals/Bold; Running matter11.

c. Left and Right margin 1 and half inch; Top and bottom margin 1inch

d. Line space1.5

e. Table and Figures shall be in separate sheets (without page number). More than 1 table or figure or plate is permitted in a page. Table number followed by the title should be on the top of the respective table. Similarly Figure Number followed by title be at the bottom of the respective figures. Regarding Plates ie photographs only original photographs (printed in photo sheet) of the work carried out and scientifically relevant to be included. The size the photographs should be reduced and neatly arranged in a page with appropriate title or sub title. Plate Number followed by the title be at the bottom of the photographs concerned.

f. Number ofcopies:

i. Copy 1 – Student copy – Neatly typed on one side with good binding to be submitted (to be returned immediately afterexamination)

ii. Copy 2 – Department copy - Neatly typed on both sides of the paper with stapler pin binding – Copies of all students have to be bound in volumes of 1 or 2 and kept in the department for reference.

iii. Copy 3 - Autonomous Office copy – Projects of all students as one CD/DVD & Hard copy of the abstract/extended abstract as OHP boundbooklet.

iv. For PG & MPhil., (Candidate copy - Hard bound (one side print), Autonomy (CD), Guide copy (CD), Department (CD containing all projects of the class), Central library (CD containing all projects of the class) & Hard copy of the abstract/extended abstract as OHP boundbooklet.

g. Uniform structure/composition of thethesis:

Uniformity in Prefix contents for all disciplines			
1	Wrapper page		
2	Wrapper page copy		
3	Contents		
4	Acknowledgement by the candidate		
5	Declaration by the Candidate with candidate’s Photo attested by HoD		
6	Certificate by the supervisor, countersigned by HoD		
7	Evaluation Examiners Page		
Running matter structure Arts, Languages, Humanities		Running matter structure Science	
1	Abstract/Extended Abstract	1	Abstract/Extended Abstract
2	Introduction	2	Introduction
3	Review of Literature	3	Review of Literature
4	Profile of The Study	4	Materials
5	Methodology & Data collection	5	Methodology
6	Analysis and Interpretation	6	Results
7	Findings, Suggestions and Conclusion	7	Discussion
8	Bibliography(Uniform format)	8	Bibliography (Uniform format)
Uniformity in Suffix – contents			
Publications – Xerox of Abstracts/extended abstracts/Full papers			

h.

i. Bibliography: Arts &Science.

i. Research article:

Latha, P., Dhanabackialakshmi, R., Kumar, P.S. and Karuthapandian, S. 2016. Synergistic effects of trouble free and 100% recoverable CeO2/Nylon nanocomposite thin film for the photocatalytic degradation of organic contaminants. Separation and Purification Technology, 168(2): 124–133

ii. Conference / Seminar / Symposium papers

Peng, J., Zhang, X., Lei, Z., Zhang, B., Zhang, W. and Li, Q. 2009. Comparison of several cloud computing platforms. In: Proceedings of Second International Symposium on Information Science and Engineering, 23 –27

iii. Books

Versteeg, H.K. and Malalasekera, W. 2007. An Introduction to Computational Fluid Dynamics. II Edn. Pearson Education Ltd., New York, pp. 517

iv. Book Chapters

Wade, S.E. 1981. Statistical designs for survey research. In: Stempel, G.H. and Westley, B.H. (Eds.). Research methods in mass communication. Printice Hall India Learning India Ltd., New Delhi, pp. 167

v. Webreference

National Institute of Mental Health. 2018, July. Anxiety disorders. U.S. Department of Health and Human Services, National Institutes of Health. <https://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>

(Author to be included first, date to be included before month, if available)

2. English for Competitive Examinations Objectives:

1. To develop students with professional and ethical attitude, effective communication skills and the attitude of working in group/with people for successful careers

Outcomes

The students can

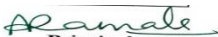
1. face the test and interview conducted by different companies and succeed 2. get the ability to communicate effectively with a range of audiences
3. have the ability to recognize the need for continuing professional development

Units	Syllabus	Hours
1	Rules for Tenses	6hrs
2	Rules and List of Prepositions Rules and List of Conjunctions	6hrs
3	Active and Passive Voice Simple, Compound and Complex Sentences	6hrs
4	List of One Word Substitutions List of Synonyms and Antonyms	6hrs
5	Idioms And Phrases Spotting the Errors	6hrs


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UEN-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211
SEMESTER VI

Programme: BA	Subject: English
Course code: 19UENC61	Course Title: Shakespeare
Category: Core – 16	Credits:4 / Hours: 6

Objectives:

1.
- To familiarize the students to Shakespearean sonnets anddrama.
2.
- Tofamiliarizethestudentstothecharacteristicsstructureof sonnetsanddrama

Units	Syllabus	Outcomes	Hours
1	Dark Lady Sonnets: Sonnet 127- In the Old Age Black was Not Counted Fair Sonnet 130- My Mistress' Eyes are Nothing Like the Sun Sonnet 152- In loving thee thou know'st I am forsworn	The students can 1. understand the uniqueness of Shakespeareansonnet 2. be inspired to write sonnets by learning thesonnets	12hrs
2	Tragedy King Lear	The students can 1. understand the conflict between good and evil 2. understand the upset andthe eventual and restoration of order	12hrs
3	Comedy As You Like It	The students can 1. enjoy wit andcomedy 2. understand the sufferings oflove	12hrs
4	Historical Play King John	The students can 1. understand the social upheaval war and familyfeuding 2. understand the excesses ofpower and the effects on the innocent victims	12hrs
5	Shakespearean Theatre 1.Elizabethan Stage and Audience 2.Fools and Clowns 3. Women inShakespeare 4. SupernaturalElements	The students can 1. understand the significance of the social, historical and culturalcontext of Shakespeare'stimes 2. appreciate Shakespeare's skill of characterization, plot construction use of humour and Wit, songand music	12hrs

Text Books

S.No	Title	Author/s	Year of [Edn]	Publisher\s
1.	As You Like It	William Shakespeare	2015 (2)	Penguin Publishers
2.	King John	William Shakespeare	2014(2)	MapleBell Publishing
3	King Lear	William Shakespeare	2013 (2)	Arden Shakespeare Publications

Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher\s
1.	Shakespeare's Sonnets and Poems	Barbara A. Mowat& Paul Werstine	2006 (1)	Simon & Schuster Publishers
2.	The Complete Works of WilliamShakespeare	David Bavinton	1996(7)	Longman Publishers

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Programme: BA	Subject: English
Course code:19UENC62	Course Title: History of English Language &Linguistics
Category: Core – 17	Credits:4 /Hours : 6

Objectives:

1.
- To provide the origin of English language, the influence of various elements.
2.
- To acquaint students with the History of English language.

Units	Syllabus	Outcomes	Hours
1	History of the English Language The Origin of Language Place of English in the Indo-European family General Characteristics of Old English (450-1100) The Old English Period The Middle English period	The students can 1. learn about the structure and history of English language 2. understand how the English language has changed from for its origin to present day	12hrs
2	Modern English Characteristics of Modern English The Evolution of Standard English Change of Meaning The English Lexicon	The students can 1. examine the origin and development of Modern English Language 2. understand the evolution of English language grounded in parallel cultural changes	12hrs
3	Linguistics What is Linguistics? Introduction to Traditional Grammar and Modern Grammar Introduction to Morphology, Syntax, Semantics and Pragmatics.	The students can 1. understand of the concepts, theories and methodologies used by linguistics 2. gain knowledge about morphology, syntax, semantics and pragmatics	12hrs
4	Makers of English: The Bible, Spencer, Shakespeare, Milton and Dr. Johnson	The students can 1. recognize the language form different ages 2. understand factors which impact language acquisition	12hrs
5	The Rise and Growth of Modern English: The Growth of Vocabulary Greek, Latin, Scandinavian, Indian and French Influences	The students can 1. trace the origins of intellectual ideas 2. understand the historical sources from different cultural background	12hrs

Text Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	An Outline History of the English Language	F.T. Wood	2014 (2)	Trinity Press

Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	A History of English Language	Albert C. Baugh and Thomas Cable	2013 (2)	Oxford University Press
2.	The Making of English	Henry Bradley	2006 (1)	Dover publication


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UEN-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211
SEMESTER VI

Programme: BA	Subject: English
Course code: 19UENC63	Course Title: Literature in Translation
Category: Core – 18	Credits:4 / Hours : 6

Objectives:.

1.
- To broaden the learner’s appreciation of the translationstudies.
2.
- To give the comprehensive knowledge of the literarytranslation.

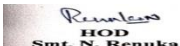
Units	Syllabus	Outcomes	Hours
1	Introduction History of Translation, Definition, Theories.	The students can 1. know the concepts oftranslations 2. develop their translationskills	12hrs
2	Poem G.U. Pope – Thirukkural : Chapter-8 The Possessionof Love. Chapter-11 -Gratitude.	The students can -1. evaluate the greatness and importance ofThirukkural 2. know the value of the gratitude and love	12hrs
3	Prose Rufus Goodwin (Italy) : ThePrince (Chapters 16& 17)	The students can 1. compare the difference between generosity and parsimony throughthis essay 2. analyse the lives of the two great military leaders : Hannibal and Scipio Africanus	12hrs
4	Fiction N.V.M Gonzalez(Filpino) – The Bamboo Dancers	The students can 1. understand the clashing of two ideologies- local Filpino culture and Westernelements 2. analysetheErnie’s quest for cultural identity	12hrs
5	Drama Artur W. Ryder – Sakunthala	The students can 1. understand the religious andspiritual values throughSakunthala 2. learn the significance of Dharma and Karma inSakunthala	12hrs

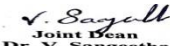
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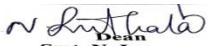
S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	The Anatomy of Translation	S.Kanagaraj and Samuel Kirubakar	2013 (2 ^o)	Madurai Prem Publications
2.	The Bamboo Dancers	N.V.M. Gonzalez	1993 (1 ^o)	Bookmark Publication

Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Translation Studies	Bassnett Susan	2002 (3 ^o)	Psychology Press
2.	Thoughts on Machiavelli	Leo Strauss	1995 (1 ^o)	Chicago Press


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UEN-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211 SEMESTER VI

Programme: BA	Subject: English
Course Code :19UENC64	Course Title: Introduction to English Language Teaching
Category: Core 19	Credits: 4 / Hours : 6

- Objectives:
1.

To develop a deeper understanding of the essential issues involved in the teaching of English
2.

To enhance teaching and professional competency to meet the current Indian/World Educational Policy

Units	Syllabus	Objectives	Hours
1	Major Trends in English Language Teaching: A Brief History of Early Developments	The students can 1. look into the history of ELT 2. get teaching career	12hrs
2	Teaching English in India: English as a Medium of Instruction, and as a Foreign Language	The students can 1. trace the role of English 2. understand the government policy in Teaching English	12hrs
3	Basic Approaches and Methods: The Nature of Approach and Methods	The students can 1. get an introduction to approaches 2. use the methods	12hrs
4	Introduction to Advanced Approaches and Methods: Content-Based Instruction Content and Language Integrated Learning	The students can 1. go to advance level 2. enhance teaching ability in LIL	12hrs
5	Outcome Based: ICT, Assessment, and Evaluation in English Classroom	The students can 1. learn the usage of technology in English classroom 2. enhance evaluation skills	12hrs

Text Books:

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Approaches and Methods in Language Teaching.	Jack C.Richards and Theodore S.Rodgers	2016 (3)	Cambridge, University Press,
2.	Teaching Primary English.	Jackie Brien	2012 (1)	Sage Publications
3.	Teach English: A Training Course for Teachers	Adrian Doff	1988(1)	Cambridge, University Press

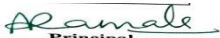
Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Models of Teaching.	Bruce Joyce, and Marsha Well	2008 (2)	New Jersey ,Prentice-Hall Publishing
2.	Teacher Education: Principles, Theories and Practices.	ShashiPrabha Sharma	2018 (2)	Kanishka Publishers
3.	Teaching and Learning in the Digital Age	Louise Starkey	2012(1)	Routledge Publishing
4.	Effective Teaching: Evidence and Practice	Daniel Muijs, and David Reynolds	2001(1)	Paul Chapman Publishing
5.	Discourse Analysis for Language Teachers	Michael Mccarthy	2011(2)	Cambridge University Press


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UEN-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 6270211 SEMESTER VI

Programme: BA	Subject: English
Course code:19UENE61	Course Title: Culinary in Fiction
Category: Elective	Credits:4/ Hours : 6

- Objectives:
- 1. To study the combination of food and literature.
 - 2. To understand that food, security and love are combined things essential for life.

Units	Syllabus	Outcomes	Hours
1	Joanne Harris(England)- Chocolate	The students can 1. understand the influence of ethnic culture in cookery 2. be aware of food which reflects the comprehensive image of our identities	12hrs
2	Chitra Banerjee Devakaruni (India):The Mistress of Species	The students can 1. be familiar with the knowledge of spices which helps the human beings to overcome the difficulties 2. learn the lifeless spices are characterized as living characters in the novel.	12hrs
3	Preethi Nair (British) - Hundred Shades of White	The students can 1. learn the chronicle of the journey of three generations of women through the metaphor of cooking 2. know the linkage between food and identity	12hrs
4	Margaret Atwood (Canada) - The Edible Woman	The students can 1. examine a woman's inability to eat with the unhappiness in her relationship 2. learn food and the graphic imagery of food fetish develops to rebuild the heroine's real self	12hrs
5	Laura Esquirol (Mexican) - Like Water for Chocolate	The students can 1. understand the powerful emotions of the protagonist begin to surface in fantastical ways through her cooking 2. learn the main character develop the power to infuse the food she cooks with emotions	12hrs

Text Books:

S.No	Title	Author/s	Year of [Edn]	Publisher's
1	Like Water for Chocolate	Laura Esquirol	1995 (1)	Random house
2	The Edible Woman	Margaret Atwood	2009 (2)	Virago Publishing
3	Hundred Shades of White	Preethi Nair	2010 (2)	Harper Collins Publishers
4	Chocolate	Joanne Harris	1999 (1)	Doubleday Publishing

Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1	The Edible Woman	Dave Carley	2002 (2)	Scirocco Drama J. Gordon Shilling Ford Publishing
2	Culinary Aesthetics and Practices in Nineteenth-Century American literature	M. Drews, M. Elbert	2014 (2)	Palgrave Macmillian Publishing Company Lt


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Programme: BA	Subject: English
Course code:19UENE62	Course Title: Travel Writing
Category: Elective	Credits:4/ Hours : 6

Objectives:

1.
- To develop the ability of students to understand the travel narrative.
2.
- To make them understand significance of travelogue in grasping various culture.

S. No	Syllabus	Outcomes	Hours
1.	American Travelogue: Mark Twain - The Innocents Abroad	The students can 1. analyze and discuss travel narratives in the light of relevant theory 2. draft and structure a piece of travel writing	12hrs
2.	Indian Travelogue: Samanth Subramanian- Following Fish	The students can 1. understand relation between culture, history and texts 2. understand the knowledge of many agendas of travel writing, which explores subjects that are personal, political, scientific, cultural and historical	12hrs
3.	British Travelogue: Charles Dickens - Pictures from Italy	The students can 1. understand and discuss important dimensions of the cultural context of Italy 2. understand the costumes, cross-dressing, and sheer exuberance of the Roman	12hrs
4.	Brazilian Travelogue: Paulo Coelho - The Alchemist	The students can 1. analyze the translation of the book from Portuguese 2. discriminate travelogue of reality and travelogue of Ecstasy	12hrs
5.	Canadian Travelogue: Susanna Moodie - Roughing It in the Bush	The students can 1. understand the Canadian landscape through the eye of a Canadian settler 2. analyze the historic and cultural significance of Canadian Literature	12hrs

Text Books:

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	The Alchemist	Paulo Coelho	2013 (1)	Harper Collins Publisher
2.	Roughing it in the Bush	Susanna Moodie	1852 (1)	G.P. Putnam Sons New York and London , the Knickerbocker Press
3.	Pictures from Italy	Charles Dickens	2006 (2)	Penguin Publishing house
4.	The Innocents Abroad	Mark Twain	2011 (2)	American Publishing company

Reference Books:

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Literature of Travel and Exploration: An Encyclopedia	Fitzroy Dearbon	2003 (1)	Taylor & Francis Books


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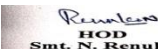

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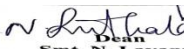

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SRI SARADA COLLEGE FOR WOMEN
(An Autonomous Institution)
(Affiliated To ManonmaniamSundaranar University, Tirunelveli) Institution Recognised U/S 2(F) and 12(B) Of UGC &
Reaccredited With “A” Grade by NAAC
(A Branch of Sri Ramakrishna Tapovanam, Thirupparaitturai) Ariyakulam, Thoothsukudi NH, Maharaja Nagar Post, Tirunelveli – 627 011.
Degree: PG Programme : M.A English Programme Structure (wef 2019-2020)

SEM	PART	CATEGORY	COURSE CODE	COURSE TITLE	HOURS/WEEK			CREDITS	Page No
					L	P	T		
1	III	Core 1	19PENC11	Modern Literature – I	6	0	6	4	
1	III	Core 2	19PENC12	Modern Literature – II	6	0	6	4	
1	III	Core 3	19PENC13	Romantic Period	6	0	6	4	
1	III	Core 4	19PENC14	Indian Writing inEnglish	4	0	4	4	
1	III	Core-5	19PENC15	Literature and Gender	4	0	4	4	
I	III	Core-6	19PENC16	African Literature	4	0	4	3	
2	III	Core 7	19PENC21	Victorian Age	6	0	6	4	
2	III	Core 8	19PENC22	Literary Theory and Criticism	6	0	6	4	
2	III	Core 9	19PENC23	Modern World Drama	6	0	6	4	
2	III	Core10	19PENC24	Comparative Literature	4	0	4	4	
2	III	Core 11	19PENC25	Creative Writing	4	0	4	3	
2	III	Elective I	19PENE2A	Communicative English	4	0	4	3	
			19PENE2B	English for Competitive Examinations	4	0	4	3	
3	III	Core 12	19PENC31	Shakespearean Drama	6	0	6	4	27
3	III	Core 13	19PENC32	Research Methodology, Academic Publication and Dissertation Writing	6	0	6	4	28
3	III	Core14	19PENC33	Translation: Theory and Practice	4	0	4	4	29
3	III	Core 15	19PENC34	British Fiction & Drama: Twentieth Century Literature	4	0	4	4	30
3	III	Elective II	19PENE3A	Canadian and Australian Literature	4	0	4	3	31
			19PENE3B	Gender Studies	4	0	4	3	32
3	III	Core 16	19PENP31	Research/ Dissertation/ Project	6	0	6	6	33
4	III	Core 17	19PENC41	British Poetry and Prose: Twentieth Century Literature	6	0	6	4	40
4	III	Core18	19PENC42	New Literature	6	0	6	4	41
4	III	Core19	19PENC43	Post-Colonial Fiction and Drama	6	0	6	4	42
4	III	Core20	19PENC44	World Literature in Translation	6	0	6	4	43
4	III	Core 21	19PENC45	English Language Teaching	6	0	6	4	44
				TOTAL				90	


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PEN – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011
SEMESTER I

Programme: M.A	Subject: English
Course Code: 19PENC11	Course Title: Modern Literature I
Category: Core - I	Credits:4
	Hours: 6

- Objectives:**
1. To familiarize the students with the evolution of the genre of fiction in Britain.
 2. To make the learners aware of the power of novel as a modern literary form.

Units	Detailed Syllabus	Hours
1	Geoffrey Chaucer : The Prologue To The Canterbury Tales In The Beginning The Knight The Prioress The Clerk The Cook The Wife Of Bath Edmund Spenser : Prothalamion Epithalamion	12
2	Sir Thomas Wyatt : I Find No Peace Henry Howard, Earl Of Surrey : London Hast Thou Accursed Me	12
3	Lord Francis Bacon : Of Truth , Of Adversity , Of Friendship , Of Studies The Bible : The Book of Esther	12
4	Christopher Marlowe : Dr. Faustus Thomas Kyd : The Spanish Tragedy Oliver Goldsmith : She Stoops to Conquer	12
5	Ben Jonson : The Alchemist Thomas Dekker : The Shoe Maker's Holiday	12

Text Books

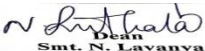
S.No	Title of the Book	Author	Edition, Year	Publication
1	Selected Essays of Bacon	Francis Bacon	IIIEdition 2015	Cosimo Classics
2	Dr. Faustus	Christopher Marlowe	II Edition 1997	Oxford
3	Amoretti &Prothalamion	Edmund Spenser	Revised 2015	Scholar's Choice

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	The Cambridge Companion to Ben Jonson	Harp, Richard, And Stanley	Stewart.Edn 2000	Cambridge University Press
2	Metaphysical Poetry	Colin Burrow	Revised Edition 2006	Penguin


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SEMESTER I

Programme: M.A	Subject: English
Course Code: 19PENC12	Course Title: Modern Literature II
Category: Core - 2	Credits:4
	Hours:6

Objectives:

1. To introduce students to authors and their select works so that they get a firsthand knowledge of the important literary works of the period
2. To stimulate further reading so as to obtain a fuller understanding of the evolution of literary forms and literary movements and other works.

Units	Detailed Syllabus (All units of same size and duration)	Hours
1	Poetry John Donne : Canonization : The Ecstasy : <u>A Valediction Forbidding Mourning</u> John Milton : <u>Paradise Lost Book IX</u>	12
2	Prose Dr. Johnson : Life of Milton Addison And Steele : Sir Rogers Family : The Picture Gallery : <u>The Character of Will Wimble</u>	12
3	Poetry Alexander Pope : The Rape of the Lock Thomas Gray : An Ode on a Distant Prospect of Eton College	12
4	Drama William Congreve : The Way of the World Richard Brinsley Sheridan : The School for Scandal <u>John Dryden : All for Love</u>	12
5	Fiction Henry Fielding : Tom Jones Oliver Goldsmith : The Vicar of Wakefield	12

Text Books

S.No	Title of the Book	Author	Edition Year	Publication
1	The Faerie Queene Book 1	Edmund Spenser	3 rd .ed. 2006	Hackett Publishing Co, Inc
2	The Vicar of Wakefield	Oliver Goldsmith	Revised Ed.2008	Laxmi Publication
3	Paradise Lost	John Milton	Re issued 2008	Oxford University Kingdom

Reference Books:

S.No	Title of the Book	Author	Edition Year	Publication
1	The Faerie Queene.	Hamilton, Albert Charles	Revised Ed. 1990	University of Toronto
2	Cambridge History of English Literature.	A. W. Ward & A. R. Waller	3 rd Ed. 2016	Cambridge India


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SEMESTER I

Programme:M.A	Subject: English
Course Code: 19PENC13	Course Title: Romantic Period
Category: Core - 3	Credits:4
	Hours: 6

Objectives:
1. To analyse genres, including novels, poetry, life writing and political writing.
2. To be familiar with both central and more obscure texts from the Romantic period, and with an overview of Romantic-Period literature and culture.

Units	Detailed Syllabus	Hours
1	Poetry William Collins : Ode to Evening William Blake : The Chimney Sweeper William Cowper : On The Receipt of My Mothers Picture Robert Burns : Highland Mary Mathew Arnold : Dover Beach	12
2	Poetry William Wordsworth : Resolution and Independence John Keats : Ode To Autumn <u>Ode on a Grecian Urn</u> P.B. Shelley : Ode to The West Wind S.T. Coleridge : Kubla Khan	12
3	Prose Charles Lamb : Christ’s Hospital <u>Dream Children</u> The Southern Sea House William Hazlitt : The Fight	12
4	Fiction Jane Austen : Emma Emily Bronte : Wuthering Heights	12
5	Fiction Sir Walter Scott : Kenilworth Maria Edgeworth : Belinda	12

Text Books

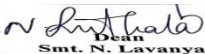
S.No	Title of The Book	Author	Edition, Year	Publication
1	Essays ofElia	Charles Lamb	I Ed., 1820	Edward Moxon London Magazine
2	Emma.Vol I	Jane Austen	I Ed. 1816	London: Printed for Murray 1816
3	The Prose Works of Charles Lamb... Last Essays of Elia	Charles Lamb	Revised Ed., 2011	Nabu Press

Reference Book

S.No	Title of The Book	Author	Edition, Year	Publication
1	Preface to Lyrical Ballads in Romantic Prose and Poetry	Harold Bloom and Lionel Trilling	I Ed., 1973	New York ; London : Oxford University Press, C1973.
2	Preface to Emile	Jean Jaccques Rousseau	II Ed., 1978	Basic Books
3.	William Blake: The Complete Illuminated Boooks	William Blake& David Bindman	Revised Ed., 2001	Thames and Hudson


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SEMESTER I

Programme: M.A	Subject: English
Course Code: 19PENC14	Course Title: Indian Writing in English
Category: Core - 4	Credits:4
	Hours: 4

Objectives:
1.To make the learners aware of the history and the growth of Indian writing in English.
2. To introduce the learners to the rich literary tradition in Indian writing in English

Units	Detailed Syllabus (All Units Of Same Size And Duration)	Hours
1	Poetry Rabindranath Tagore : Gitanjali (1,2,3,12 And 24) A.K. Ramanujam : River Obituary Agha Shahid Ali : Post Card from Kashmir Dilipchitra : My Father Returns Home JayantaMahapatra : A Rain of Rites	12
2	Prose Rabindranath Tagore : Nationalism AnandaCoomaraswamy : That Beauty is a State : Dance of Shiva B.R. Ambedkar : Extracts, 4 and 5 from Annihilation of Caste	12
3	Drama Mahesh Dattani : Final Solutions Mahasweta Devi : Rudali	12
4	Fiction R.K. Narayan : Painter of Signs Mulk Raj Anand : Coolie Kamala Markandaya : Nectar in A Sieve	12
5	Fiction ChetanBhagat : One Night @ the Call Centre Anita Nair : Lessons in Forgetting	12

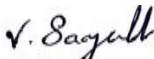
Text Books

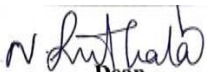
S.No	Title of he Book	Author	Edition, Year	Publication
1	Rabindranath Tagore: Selected Poems	Rabindranath Tagore	New Edition 2000	Penguin India
2	The White Tiger	AravindAdiga	III Ed., 2008	Free Press
3	Gitanjali	Rabindranth Tagore	Revised Edition., 2011	Embassy Book

Reference Books

S.No	Title of the Book	Author	Edition, Year	Publication
1	History of Indian English Literature	K.R. SrinivasaIyengar	II Ed., 1962	Sterling Publishers
2	Bachelor of Arts	R.K Narayan	Revised Ed., 1980	University Of Chicago


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SEMESTER I

Programme: M.A	Subject: English
Course Code: 19PENC15	Course Title: Literature and Gender
Category: Core - 5	Credits: 3
	Hours: 4

Objectives:

- 1.To make the students familiar with the emergence and growth of the notion of gender as a concept central to the reading of literature.
2. To introduce a wide variety of theoretical, critical and creative works that defined and redefine the concept.

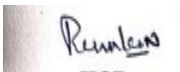
Units	Detailed Syllabus (All Units Of Same Size And Duration)	Hours
1	Poetry Sylvia Plath : Daddy : <u>Mirror</u> : The Arrival of The Bee Box : Edge. ImtiazDharker : Blessing : Purdah I : Battle-Line	10
2	Drama Ama Ata Aidoo : The Dilemma of a Ghost ManjulaPadmanabhan : Harvest	10
3	Fiction Toni Morrison : The Beloved Doris Lessing : The Grass is Singing	10
4	Non-Fiction Virginia Woolf : A Room of One’s Own (Chapter IV) : <u>Profession for Women</u> Simon De Beauvoir : The Second Sex (Book I, “Facts And Myths”)	10
5	Fiction Anita Brookner : Hotel Du Lac Shobha De : Socialite Evenings NamitaGokhale : <u>Lost in Time</u>	10

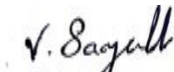
Text Books

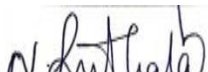
S.No	Title of the Book	Author	Edition, Year	Publication
1	Beloved	Toni Morrison	III Ed., 1999	Rhuk
2	Hotel Du Lac	Anita Brookner	V Ed.,1984	Jonathan Cape
3	Socialite Evening	Shoba De	Revised Ed., 1989	Penguin

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Shakespeare’s Sister from a Room of One’s Own	Judith Butler	Edition 1 2006	Routledge
2	The Beauty Myth	Naomi Woolf	Reprint Edition. 2002	Harper Perennial
3	Literature & Gender (The Essentials Literature Series)	Elizabeth Prima More & Dolores Deluise	Revised Ed., 2010	Pearson


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PEN – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011
SEMESTER I

Programme: M.A	Subject: English
Course Code: 19PENC16	Course Title: African Literature
Category: Core - 6	Credits: 3
	Hours: 4

Objectives:
1.To have clean vision of the African History and Culture.
2. To understand and analyse Africa and African centred perspectives.

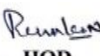
Units	Detailed Syllabus	Hours
1	.Poetry Julia Lithebe : The Sunshine Neo Mvubu : Mighty Eyes Gabriel Okara : Once Upon a Time	10
2	Poetry Ben Okri : A New Dream of Politics Christopher Okigbo : Hurrah or Thunder Wole Soyinka : Telephonic Conversation	10
3	Drama Ama Ata Aidoo : Anowa	10
4	Fiction Nadine Gordimer : July’s People	10
5	Fiction Nuruddin Farah : Sardines Alice Walker : Colour Purple	10

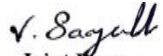
Text Books

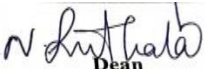
S.No	Title of the Book	Author	Edition, Year	Publication
1	The Color Purple	Alice Walker	Second Edition 2009	Amsterdam and Newyork
2	Ama Ata Aidoo	Anowa	I Ed.1970	Prentice Hall Press
3	July’s People	Nadine Gordimer	2017	Bloomsbury

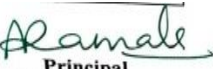
Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Postcolonial Plays: An Anthology	H.Gilbert	Revised Edition, 2015	Routledge.
2	The Nobel Prize in Literature	Wole Soyinka	Revised. 2013	org. The Nobel Prize
3	Creating Postcolonial Literature	Caroline Davis	II Ed,. 2013	Palgrave Macmillian


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SEMESTER II	
Programme: M.A	Subject: English
Course Code:19PENC21	Course Title: Victorian Age
Category: Core –7	Credits:4
	Hours: 6

Objectives:

- 1.To make the students to know about the previous history of England
- 2. To enable the students to form a comprehensive picture of prescribed poets

Outcomes:

Upon the completion of the course the students can:

- 1.Understand the socio-political context of the period from 14th century -17 th century.
- 2.Gain knowledge in the growth and development of Victorian drama.

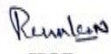
Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Poetry Alfred Lord Tennyson – Ulysses Robert Browning – My Last Duchess	12
2	Prose Thomas Carlyle - Heroes and Hero Worship (Lecture II The Hero as Prophet) John Ruskin – Sesame Lilies	12
3	Fiction John Galsworthy - The Silver Box J.M. Barrie - The Admirable Crichton	12
4	Fiction Charles Dickens - Oliver Twist Charlotte Bronte - Vilette	12
5	Fiction George Eliot - Adam Bede Thomas Hardy - The Return of Native	12

Textbooks:

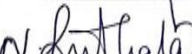
S.No	Title Of The Book	Author	Edition, Year	Publication
1	Vilette	Charlotte Bronte	1853	Smith Elder &co
2	Oliver Twist	Charles Dickens	1837 -1839	Bentley’s Miscellany
3	Adam Bede	George Eliot	1859	John Blackwood
4	Admirable Crichton	J.M. Barrie	1902	United Kingdom

Reference Books:

S.No	Title Of The Book	Author	Edition, Year	Publication
1	Oliver Twist Introduction & Summary	William	2018	Encyclopedia Britannica.
2	A Companion to the Victorian Novel	Baker&Kenneth Womack	2002	Greenwood
3	The Silver Box			
4	The Children of Charles Dickens	John Galsworthy Donovan Frank	1916 1968	Charles Scribner’s Sons Macmillan


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SEMESTER II	
Programme : M.A	Subject : English
Course Code :19PENC22	Course Title: Literary Theory and Criticism
Category : Core- 8	Credits : 4
	Hours : 6

- Objectives:**
- 1.To Acquaint the learners with the various literary theories.
 - 2. To introduce modern critical theory as a basic discipline in the study of the principles of modern Literature

- Outcomes:**
- Upon the completion of the course the students can:**
- 1.Identify major theoretical /critical movements and theorists as well as primary concepts with which they are associated.
 - 2.Strengthen and deepen critical reading, writing, and interpretive practices.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Jacques Derrida- Structure, Sign and play in the Discourse of the Human Science Jonathan Culler- Structuralism and Literature	12
2.	John Hills Miller- The Critic as Host Roland Barthes- The Death of author	12
3	Elaine Showalter- Feminist Criticism in the Wilderness Simon de Beauvoir- Second Sex –Chapter-V	12
4	Edward Said- Introduction to Orientalism Homi K Bhabha- Introduction ; The Location of Culture	12
5	GayatriChakkaravortySpivak- Can the Subaltern Speak?	12

Text Books

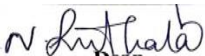
S.No	Title of the Book	Author	Edition, Year	Publication
1	An Introduction Literary and Cultural Theory	Peter Barry	Ed.4 th , 2018	Viva Book private
2	Contemporay Literature and Cultural Theory	K. Nayar	2009	Pearson Education
3	Modern Literary Criticism and Theory	M.A.R Habib	2008	Wiley Blackwell
4	Literary Theory and Criticism	RohanSavariMuthu	1930	New Century Book House
5	The English Critical Tradition : An Anthology of English Literary Criticism (Vol 1)	S. Ramaswami& V.S. Sethuraman	2017	Lakshmi Publications

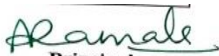
Reference Books

S.No	Title of the Book	Author	Edition, Year	Publication
1	The Norton Anthology of English Literary Criticism	Cincent B. Leitch	III Edition, 2001	W.W. Norton & Co
2	Literary Theory An Introduction	Terry Eagleton	III Edition, 2006	Fleming H Revell Co.
3.	New Feminist Criticism	Elaine Showalter	III Edition,2008	Pantheon
4	Literary Theory A Very Short Introduction	Jonathan Culler	1997	Oxford


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SEMESTER II	
Programme: M.A	Subject: English
Course Code:19PENC23	Course Title: Modern World Drama
Category: Core –9	Credits:4
	Hours: 6

- Objectives:**
- 1. To comprehend the continual critical engagement of drama with society.
 - 2. To gain insight into variety of issues relating to English drama in the modern context.
- Outcomes:**
- Upon the completion of the course the students can:**
- 1. Develop Positive Self- Concepts and their Capacity to establish and maintain safe , healthy and rewarding lives.
 - 2. Understand, develop and communicate ideas and information.

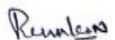
Units	Detailed Syllabus (all units of same size and duration)	Hours
1	GirishKarnad – Hayavadana	12
2	Anton Chekhov - The Cherry Orchard	12
3	Samuel Beckett –Waiting for Godot	12
4	Dario Fo – Accidental Death of an Anarchist	12
5	Sam Shepard – Berried Child	12

Text Books:

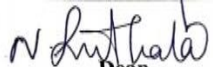
S.No	Title of the Book	Author	Edition, Year	Publication
1	Miss Julie	August Strindberg	1906	Bloomsbury
2	Accidental Death of an Anarchist	For Dario	2004	DnauchDahcabai LAP LAMBERT
3	American Gothic: Sam Shepard’s Family Trilogy	Rodney Simard	2011	Academic Publishing

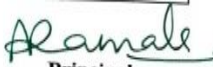
Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	A Glossary of Literary Terms	M. H. Abrahams	1970	India: Macmillan
2	DarioFo: Revolutionary Theatre	Tom Behan	2000	London: Pluto
3	Miss Julie and Other Plays	August Strindberg	1998	Oxford University


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SEMESTER II	
Programme : M.A	Subject : English
Course Code : 19PENC24	Course Title: Comparative Literature
Category : Core – 10	Credits : 4
	Hours : 4

Objectives:

- 1. To introduce the learners, the literary tradition in Indian Writing in English
- 2. To provide the learners a feel of native writing in English

Outcomes:

Upon the completion of the course the students can:

- 1. Gain knowledge about the masterpieces in Indian Writing in English Translation.
- 2. Learn the virtue of sacrifice, passions, integrity, tolerance and selflessness of Indian tradition.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	What is Comparative Literature? Different Definitions, General Literature, World Literature scope and relevance of the subject in Indian context. Methodology of the study of genres; major genres in world literature identified and compared how genres originate and spread.	12
2	The study of translation; Theory; adaptation; abridgement; literal vs. Literary reading; literature and other discipline; literature and ideas.	12
3	Movements: Romanticism in Shelley and Balkav	12
4	Authors Claude Brown’s Manchild in the Promised Land and LaxmanGaikwad’s The Branded	12
5	Project- Compare any two pieces of Literature and submit the report	12

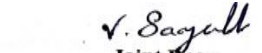
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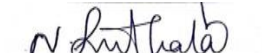
S.No	Title of the Book	Author	Edition, Year	Publication
1	Methods and Perspective	NewtonphelpsStallk netcht	2012	Literary Lincensing
2	Comparative Literature	Henry Gifford	1969	Humanities
3	Shelley and the Revolution in Taste:	Timothy Morton	1994	Cambridge Studies
4.	The Body and the natural world The Translation Studies	Lawrence Venuti	2004	Routledge

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Aspects of Comparative Literature	Chandra Mohan	1989	Indian Publisher
2	The Mirror and the a Lamb	A.H. Abrahams	1953	Oxford University press
3	A Touch stone book	Claude Browns	1 st 1999	Macmillan
4	Introducing Translation Studies: Theories and Applications	Jeremy Munday	2009	Routledge


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SEMESTER II	
Programme : M.A	Subject : English
Course code: 19PENC25	Course Title: Creative Writing
Category : Core –11	Credits : 3
	Hours : 4

Objectives:
1.To help the students to develop their own powers of expression, empathy and critical reading and thinking.
2.To focus on students’ self-expression

Outcomes:
Upon the completion of the course the students can:
1.Involve in extra curricular writing –based activities.
2.Access latent creativity or more technical issues.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	What is Creative Writing Defining Creativity, Measuring Creativity, Creativity and Resistance, Restriction on an Open Field, Can Creative Writing be Taught? The Importance of Reading.	12
2	The Art and Craft of Writing: Troupes and Figures. 1. Based on similarity- Simile, Metaphor, and Homonym 2. Based on Difference: Antithesis, Paradox, Synecdoche, Allusion, and Symbol 3. Based on Extension of ideas: Personification, and Hyperbole 4. Based on Obliqueness: Irony, Euphemism, Ambiguity, and Pun	12
3	Style and Register, Formal and informal usage varieties of English, Language and Gender, Disordered Language, Playing with Words, Grammar and word order.	12
4	Modes of Creative Writing Definition of Poetry: What is poetry?, The four function of language, What to write and How to start, Poetry and Prose, Shape, Form and Technique.	12
5	Fiction, Non-Fiction, Fiction and the 20 th century, The Importance of History, Types of Novels, The Short Story and the novel, Character, Plot, Point of view (modes of narration)	12

Text Books

S.No	Title of the Book	Author	Edition, Year	Publication
1	Creative Writing: A Beginners Manual	AnjanaNeiraDev, AnuradhaMarwah and Swati Pal	2008	Pearson: Longman
2	Modes of Writing	William StrunkJr& EB White	1999	Pearson
3.	Writing Tools: 55 essentials Strategies for every writers	Roy Peter Clark	1 st 2008	Little Brown &Company

Reference Books

S.No	Title of the Book	Author	Edition, Year	Publication
1	The Cambridge Introduction to Creative Writing	David Morley	2007	Cambridge University Press
2	The Routledge Creative Writing Course Book	Paul Mills	2006	Routledge.London and New York
3	The Only Grammar Book You’ll Ever need: A One-Stop source for every	Susan Thurman	2003	Adams Media


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SEMESTER II

Programme : M.A	Subject : English
Course code : 19PENE21	Course Title : Communicative English
Category : ELECTIVE-1	Credits : 3
	Hours : 4

Objectives:

- 1. To improve the communication skills of the learners
- 2. To improve the soft skills of the learner

Outcomes:

Upon the completion of the course the students can:

- 1.Learn the importance of skills of writing, reading, speaking, and listening.
- 2.Learn the factors influencing the communication and the barriers of communications.

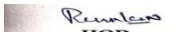
Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Introduction - What is Communication? - Types of Communication - Barriers in Communication - Effective Communication	10
2	Listening - Multiple Choice - Sentence Completion - Short Answer Question	10
3	Speaking - Personal Introduction - Describe Image - Read Aloud and Re-speak Sentence - Re -Tell Lecture and Body Language	10
4	Reading - Matching Paragraph Information Question - Multiple Choice Question - Summary Completion Question - Flow Chart Completion	10
5	Writing - Task 1 – Summarize Written Test - Task 2 - Description, Report, Argument, Discussion and Opinion	10

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	A Text book of Communicative English	N.K Narula	II Edition 2012	Ane Books Pvt.Ltd.,
2	Communicative English	Dr.Anuradha&Dr. MeenalBatra	I Edition , 2016	Nrimal Publishing
3	Oral Communication Skills	V.SasiKumar&GeethaRajee	I Edition. 2009	Cambridge

Reference Books:

S.No	Title of the Book	Author	Edition Year	Publication
1	Advanced English Communication Skills	K.R. Lakshmi Narayanan	Revised Edition. 2009	Scitech Publication India Ltd.
2	Companion to Communication Skills	J.K Mishra	XI Edition. 2012	PHI Learning
3	Developing Communication Skills	Deborah Brittm Roebuck	I ed. 1990, revised 2011	Macmillan
4	Improving Business Communication Skills	Deborah Britt Roebuck	IV Edition. 2005	Prentice Hall


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SEMESTER II	
Programme : M.A	Subject : English
Course code: 19PENE22	Course Title: English for Competitive Examination
Category : Elective-II	Credits : 3
	Hours : 4

Objectives:
1. To create a certain mindset, stamina and understanding to prepare for competitive exams.
2.To improve the language by understanding a mix of useful concepts

Outcomes:
Upon the completion of the course the students can:
1.develop their own style of writing
2.sharpen their verbal ability.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Vocabulary – Synonymous & Antonymous, Basic English Grammar, Tense, Article, Preposition, Verb, Noun Agreement and Parts of Speech, Reading Comprehension, Sentence Completion, Sentence Rearrangement, Para jumbles, Jumbled Sentence and Gloze.	12
2	Error Spotting, Idiom/phrases, Spell check, Fill in the blanks, Compound words, Blending words	12
3	Identify the degrees, figure of speech in poem, one word substitution, Sentence correction, Sentence improvement	12
4	Active and passive sentence, conversation into direct/ indirect narration, spelling / detecting and misspelled words	12
5	How to write a precis, reconstructing passage, Some notions, conventional/ idiomatic expressions, misplace modifiers	12

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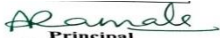
Text Books

S.No	Title of the Book	Author	Edition, Year	Publication
1	English for Competitive Examination	Ed. R P Bhatnagar RajulBhargava	VII Edition. 2001	Macmillan India Ltd


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PEN – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 627011 SEMESTER III

Programme: MA	Subject: English
Course code:19PENC31	Course Title: Shakespearean Drama
Category: Core – 12	Credits:4 / Hours : 6

Objectives:

- 1)
- To make the students understand the greatness of Shakespeare as themaster of stagecraft.
- 2)
- Tohelpthestudentstoappreciatetheoriginalandcreativeuseoflanguage.

Units	Syllabus	Outcomes	Hours
1	Introduction Elizabethan Stage and Theatre	The students can 1. acquire knowledge about the structure of theatres and the evolution ofRenaissance 2. comprehend the general features ofRose, Swan and Globetheatre	12hrs
2	Comedy A Midsummer Night’s Dream	The students can 1. gain an insight into the genre called romanticcomedy 2. analyze the elements of comedy such as treatment of disguise and the preference to idyllicsetting	12hrs
3	Tragedy Othello	The students can 1. explore the plot structure andelements of Shakespeareantragedy 2. identity the predominating aim of Elizabethans to attainpower	12hrs
4	Romance Antony and Cleopatra	The students can 1. probe into the plays with feminist point of view 2. find out the major conflicts of Elizabethan era	12hrs
5	Historical Play Richard II	The students can 1. know the characteristic features of Shakespeare’s history plays and the portrayal of politically immoralworld 2. learn Shakespeare’s theatrical skill of drama	12hrs

Text Book:

S.No	Title	Author/s	Year of [Edn]	Publisher/s
1.	The Complete Works of Shakespeare	Shakespeare	2011 (1)	Wilco Publishing House

Reference Book:

S.No	Title	Author/s	Year of [Edn]	Publisher/s
1.	Shakespearean Criticism :Excerpt from the Criticism of William Shakespeare’s Plays&Poetry, from the First Published Appraisals to Current Evolution	Michelle Lee	2015 (5)	Gale a Centgage Company

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SEMESTER III

Programme: MA	Subject: English
Course Code : 19PENC32	Course Title: Research Methodology, Academic Publication and Dissertation Writing
Category: Core 13	Credits: 4 / Hours : 6

- Objectives:
- To acquire the skills needed by students undertaking research in the arts and humanities.
 - To make the students apply the strategies of research so that the project work might evolve, an illustrate of all research methodologies.
 - To help the students gain a practical knowledge of research.

Units	Detailed Syllabus	Outcomes	Hours
1	1. Introduction to Research Skills and Methods 2. Research and Writing Plagiarism and Academic Integrity	The students can 1. deploy skills in the close reading and analysis of texts, and in reviewing their concepts. 2. articulate knowledge and understanding of texts, concepts and theories relating to English studies	12hrs
2	Introduction to Critical Approaches to Literature and Criticism	The students can 1. understand the literary Critical approaches 2. know the variety of critical and theoretical approaches	12hrs
3	1.The Mechanics of Writing, 2.The Format of the Research Paper Abbreviations	The students can 1. learn different styles or formats which are used in citing the works referred	12hrs
4	1. Documentation: Preparing the list of Works Cited 2. Documentation: Citing Sources in the Text	The students can 1. know the principles behind evaluating sources for their research	12hrs
5	How to Prepare for a Viva Voce Examination/Thesis Defense	The students can 1. learn how to prepare for Viva Voce Examinations	12hrs

Text Books:

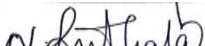
S.No	Title	Author/s	Year of [Edn]	Publisher's
1	Research Methods in English Literature	Nishant Pandya, Dr. Chetan Trivedi	2015 (1)	Para Publishers
2	A Handbook of Critical Approaches to Literature	Guerin Wilfred L	2005 (5)	Oxford University Press
3	MLA Hand Book for Writers of Research Papers	-	2016 (8)	MLA (Modern Language Association of America)

Reference Books:

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	How to Survive Your Viva: Defending a Thesis in an Oral Examination.	Rowena Murray.	2009	Oxford University Press
2.	The PhD Viva: How to Prepare for Your Oral Examination (Macmillan Research Skills)	Peter Smith	2014	Palgrave Publishing house


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PEN – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 627011
SEMESTER III

Programme: MA	Subject: English
Course code: 19PENC33	Course Title: Translation: Theory and Practice
Category: Core – 14	Credits: 4 / Hours : 4

- Objectives:
- To promote an understanding of cultural differences, cultural barriers and challenges faced by the translators.
 - To develop skills in the comparison and evaluation of translations.

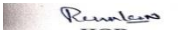
Units	Syllabus	Outcomes	Hours
1	Translation and its Perspectives Language as a Medium, Referential Meaning Connotative Meaning, Definitions of Translations Linguistic and Cultural Distances between the Source and Target Languages, Lexical Untranslatability	The students can 1. identify cultural difference with the Impact on the target language translation and vase of dealing with such difficulties 2. appreciate important concepts, themes and traditions through the study of influential classical texts from the ancient world and apply them to the present contexts	12hrs
2	Translation Theories and Theorists Major Theories Philosophical Theory , Linguistic Theory, Socio Linguistic Theory, Integrated Theory Major Theorists J.C. Catford, Eugene A. Nida, Peter Newmark, Sujit Mukherjee, Juliane House and Other Theorists.	The students can 1. discover the best of the ethical, ideological and cultural elements from the wide Gamut of classical texts across cultural theories 2. gain knowledge and understanding of the types of difficulties encountered when translating texts aimed at the general public	12hrs
3	Lexical Problems and the Compensatory Mechanisms Borrowing, Transliteration, Literal Translation, Definition, Addition, Omission, Lexical Creation, Transcription, Substitution. Generic and Specific Names, By using Multi-Lexical Units, Hybrid Formation or Loan Blending , Kinship Terms, Units of Measurements	The students can 1. differentiate the style and convention in written forms between English and other languages 2. comprehend the evolution of translation studies as a spate field from translation	12hrs
4	Syntactic Problems and the Procedures Double Words , Repetitive Words, Idioephones Pleonasms and Reduplication, Active and Passive, Construction, Gender, Number	The students can 1. comprehend the theories of translation and their cultural implication 2. attain the skill of translating passages from the source language to target language	12hrs
5	Stylistic Devices and the Procedures Imagery, Idioms, Proverbs, Non- Verbal Communication, Honorific Affixes, Proper Names, Vocatives, Play on Words, Transformation of Sentence	The students can 1. know about the importance of sense for sense translation, rather than the word for word translation 2. identify cultural difference with the impact of the target language translation	12hrs

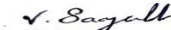
Text Book:

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Theory and Practice of Translation	Dr. K.Hema	2018 (1)	Shanlax Publication

Reference Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Theory and Practice of Translation	Eugene A. Nida	2003 (3)	Brill Publishers


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Programme: MA	Subject: English
Course code: 19PENC34	Course Title: British Fiction and Drama :Twentieth Century Literature
Category- Core 15	Credits: 4/ Hours: 4

- Objectives:
- To acquaint the students with the literature of Britain in the early20th century, focusing on the modernist canon in poetry, novel, and literarycriticism.
 - To introduce students to the wide range of social, political and cultural knowledge of 20th Century

Units	Syllabus	Outcomes	Hours
1	Fiction 1.GeorgeOrwell - AnimalFarm	The students can 1. learn the social structure of Victorian Era 2. understand the conceptcalled political satire	12hrs
2	Drama HenrikIbsen - A Doll’s House Harold Pinter - TheBirthday Party	The students can 1. learn about the culture andtradition ofNorway 2. understand that appearance is deceptive	12hrs
3	Fiction 1.George Eliot - Middle March	The students can 1. learn the Woolf’s feminism and post-feminism 2. understand the concept called Bildungsromannovel	12hrs
4	Drama George Bernard Shaw-Candida	The students can 1. compare and contrast traditionsand modernity 2. realize the tragedy ofthehumanity	12hrs
5	Fiction 1.H. G. Wells(UK) - The Invisible Man	The students can 1. learn the importance of science fiction inliterature 2. acknowledge the worth of innocence andindividuality	12hrs

Text Books:

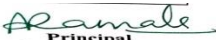
S.No	Title	Author/s	Year of [Edn]	Publisher’s
1.	Riders to the Sea	J M Synge	2014 (3)	Unique Publisher Pvt
2	A Doll’s House	Henrik Ibsen	2019 (1)	Maple Press
3	Animal Farm	George Orwell	2018 (\$)	Peacock Books house
4	Middle Marach	George Eliot	2018 (1)	Gyan Publishing House
5	The Invisible Man	H.G.Wells	2017 (3)	Fingerprint Publishing

S.No	Title	Author/s	Year of [Edn]	Publisher’s
1.	IGNOU British Drama (IGNOU MEG 02)	Edited books	2019	ShriChakradhar Publication (PVT) LTD.


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PEN – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 627011
SEMESTER III

Programme: MA	Subject: English
Course code: 19PENE31	Course Title: Canadian and Australian Literature
Category: Elective	Credits: 3 / Hours: 4

- Objectives:
- 1. To introduce to the students the life, sufferings and culture of Canada and Australia through Canadian and Australian Literature
 - 2) To enable students to understand nexus between literature and society

Units	Syllabus	Outcomes	Hours
1	Poetry 1.Charles Robarts (Canada) - The Sower 2.E.J.Pratt(Canada) - The Dying Eagle 3.Judith Wright (Australia) - The Flood	The students can 1. learn the exploitation of the nativepeople 2. understand the importanceof allegory	9hrs
2	Prose 1. Susanna Moodie(Canada-English)- Roughing it in the Bush(Excerpts) 2. David Malouf (Australia)-From Remembering Babylon	The students can 1. understand the dilemma of immigrants 2. learn the concept of magical realism	9hrs
3	Short Stories 1. Henry Lawson(Australia) - TheDrove’s Wife 2. Alice Munro(Canada) - Boys andGirls	The students can 1. learn the patriarchal treatment of women 2. realize the assigned rolesof women and gather courage to overcome the imposed rules	9hrs
4	Drama James Reaney(Canada) - Three Desks Ray Lawler(Australia) - Summer of the Seventeenth Doll	The students can 1. identify the conflict between civilization andinnocence 2. understand how theCanadian spirit of nationality and Self- identity	9hrs
5	Fiction 1.Alice Munro(Canada) - The Photographer 2.Patrick White(Australia) - Voss	The students can 1. understand the concept of existentialism 2. learn the impact of suffering, identity andreligion	9hrs

Text Books:

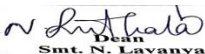
S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	A New Anthology of Canadian Literature in English	Russell Brown/ Donna Bennett	2019(4)	Oxford University Press
2.	Roughing it in the Bush	Susanna Moodie	2012 (3)	HardPress Publishing
3.	Voss	Patrick White	2009 (4)	Penguin Classics Publisher
4.	Life of Girls and Women	Alice Munro	2001 (3)	Vintage Press

Reference Book

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	The Killdeer and Other Plays	James Reaney	1962(1)	Macmillan Co. of Canada


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SEMESTER III

Programme: MA	Subject: English
Course code: 19PENE32	Course Title: Gender Studies
Category: Elective	Credits: 3 / Hours : 4

Objectives:

1.
- To demonstrate knowledge of Feminist Writers in the field
2.
- To identify and employ legitimate sources of information covering social inequalities and injustices

Units	Syllabus	Outcomes	Hours
1	Feminism and Philosophy Reflections of Twenty Years of Feminism Feminist Theory and Feminist Movements	The students can 1. learn about the three stages of feminism 2. get to know about different feminists and their theories	9hrs
2	Realism and Feminist Fiction Eco Feminism Women Gender	The students can 1. examine the difference between sex and gender 2. evaluate and compare feminist theories and methodologies	9hrs
3	Feminist Archetypes Female Portrayals in English literature The Quest for Identity in Women’s Literature	The students can 1. articulate how women’s studies and gender studies is a distinct field connected to other interdisciplinary fields of study 2. understand the portrayal of female characters in English Literature	9hrs
4	Black Women and South Asian Women Writers	The students can 1. try to evaluate the terms racism and feminism 2. analyze the double oppression of women	9hrs
5	Feminism in the Media Oppressions and Transnationalism in the Women’s Movement	The students can 1. read current social inequities effectively and suggest solutions based on feminist methodologies 2. get knowledge on oppressions and Transnationalism in the Women’s Movement	9hrs

Text Books:

S.No	Title	Author/s	Year of [Edn]	Publisher’s
1.	Woman/Image/Text: Feminist Readings of Literary Texts.	Lola Chatterji	1986 (1)	Trianka, New Delhi
2.	The Second Sex.(reference book)	Simon de Beauvoir	1974 (1)	Vintage Books

Reference Book:

S.No	Title	Author/s	Year of [Edn]	Publisher’s
1.	Genders	David Glover and Cora Kaplan	Revised Edition, 2000	Routledge Classics, London and Newyork



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PEN – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 627011
SEMESTER III

Programme: MA	Subject: English
Course code: 19PENP31	Course Title: Research/ Dissertation/Project
Category: Core – 16	Credits: 6 / Hours: 6

1. Project
- 1 Objective:
1.

To submit a project on new areas which would prepare students for research at higher levels.
2.

To help the students to gain a practical knowledge of research
- Outcomes:
1.

This project helps the student with a practical knowledge and understanding of literature from different point of views
2.

This practical research helps the student to analyze complex problems to reach an established conclusion.

Project Guidelines

(For Certificate, Diploma, Advanced Diploma, UG, PG, and MPhil., programmes)

14. Duration of the project work shall be for a period of one semester
15. Project work shall be carried out under the supervision of a faculty member of the department concerned or from allied department, if the work is of interdisciplinary in nature or with internal or external expert beyond the department as co-supervisor.
16. The supervisor allocation shall be made by lot by the end of 4 semester in UG, by the end of 2nd semester in PG (April 1st week) and for MPhil., 15 days after joining the programme. The allocation details may be sent to Autonomous cell by 10th April for UG & PG and for MPhil., 30 days after joining the programme.
- c. After allocation, the respective supervisors have to conduct orientation/counsel meeting with the assigned candidates about the project with P3 agenda (Participation, Presentation, and Publication) towards career prosperity. Subject Knowledge towards Pure and Applied part may be highlighted for doing the project.
- d. The HoD shall review the coverage of different fields of the subject amongst the candidates and to see that the students should not focus on particular fields alone.
17. The candidates have to study/refer journals/previous works/focus on the proposed topic in the summer vacation and 5-10 titles of proposed project on respective subject (discipline) or on allied subject (interdisciplinary) with economic/scientific/social/local/state/national/global issues may be submitted to the guide by May end.
18. The supervisor shall guide the candidates on their choice after having reviewed proposed topics, the mindset and work culture, provided the work is of innovative in nature, affordable and with future prospective. If not satisfied with the proposed topic/due to lack of infrastructure/beyond scope and practicality, supervisor herself shall suggest the field/topic for work. Hard copy of proposed title with objectives in the prescribed format to be submitted to CoE's Office through Dean, Autonomous in the last week of June
19. Parent's undertaking/willingness may be obtained in writing by inviting the parents for department level meeting after explaining its importance, guidelines, safety precautions related to outdoor project commitment setc.
20. Project period – June to September. Last date for the submission of dissertation is 15th October
21. Project Progress Review has to be conducted in 5th July, 5th August and 5th September. Report Card for individual candidates shall be maintained at the department for audit at any time. (Proforma)
22. If a candidate fails to submit the dissertation on or before the specified date, she may submit the same on or before 15th November by paying prescribed late fee.
23. The evaluation of dissertation will be as per the University/Autonomous norms

The assessment of Project component during the Course and in the End-semester examinations shall be carried out as follows:

CIA (Max: 25 Marks)				End – Semester Examination (Max.: 75 marks)				
Marks for Reviews (Average of the best two of the three compulsory Reviews) (Max.: 25 marks)				Marks for Thesis Evaluation (Max.: 25 marks)		Marks for Viva-Voce Exam. (wit the Deptl. Faculty Member / Course students) (Max.: 50 marks)		Total (Max.)
Review I (Max.)	Review I I (Max.)	Review III (Max.)	Average of the best two (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	
25	25	25	25*	12.5	12.5	25	25	75*

* The marks secured may be rounded off to its nearest integer.

24. PG and M.Phil., students should carry out the project individually. UG students may undertake group projects with a maximum of three students in a group. The group may be of interdisciplinary nature combining students from two to three departments with the concern of the respective guides. An undertaking, in this regard, has to be submitted by the group of students with the endorsement by the guides.
25. LATEX procedure shall be followed for Mathematicsprojects.
26. *GUIDELINES ON THESIS (WITH STATIONERY ECONOMYMEASURES):*
- j. Number of Pages (inclusiveof prefix andsuffix):
- i) V semester Project Maximum 40pages;
- ii) VI semester Project Maximum 60pages,
- iii) PG Projects Maximum 80 pages; Iv) MPhil., maximum 100pages.
- k. Size of the paper A4; Font Times New Roman; Title 14 Capitals/Bold; Subtitle 12 Capitals/Bold; Running matter11.
- l. Left and Right margin 1 and half inch; Top and bottom margin 1inch
- m. Line space1.5
- n. Table and Figures shall be in separate sheets (without page number). More than 1 table or figure or plate is permitted in a page. Table number followed by the title should be on the top of the respective table. Similarly Figure Number followed by title be at the bottom of the respective figures. Regarding Plates ie photographs only original photographs (printed in photo sheet) of the work carried out and scientifically relevant to be included. The size the photographs should be reduced and neatly arranged in a page with appropriate title or sub title. Plate Number followed by the title be at the bottom of the photographs concerned.
- o. Number ofcopies:
- v. Copy 1 – Student copy – Neatly typed on one side with good binding to be submitted (to be returned immediately afterexamination)
- vi. Copy 2 – Department copy - Neatly typed on both sides of the paper with stapler pin binding – Copies of all students have to be bound in volumes of 1 or 2 and kept in the department for reference.
- vii. Copy 3 - Autonomous Office copy – Projects of all students as one CD/DVD & Hard copy of the abstract/extended abstract as OHP boundbooklet.
- viii. For PG & MPhil., (Candidate copy - Hard bound (one side print), Autonomy (CD), Guide copy (CD), Department (CD containing all projects of the class), Central library (CD containing all projects of the class) & Hard copy of the abstract/extended abstract as OHP boundbooklet.
- p. Uniform structure/composition of thethesis:

Uniformity in Prefix contents for all disciplines			
1	Wrapper page		
2	Wrapper page copy		
3	Contents		
4	Acknowledgement by the candidate		
5	Declaration by the Candidate with candidate's Photo attested by HoD		
6	Certificate by the supervisor, countersigned by HoD		
7	Evaluation Examiners Page		
Running matter structure Arts, Languages, Humanities		Running matter structure Science	
1	Abstract/Extended Abstract	1	Abstract/Extended Abstract
2	Introduction	2	Introduction
3	Review of Literature	3	Review of Literature
4	Profile of The Study	4	Materials
5	Methodology & Data collection	5	Methodology
6	Analysis and Interpretation	6	Results
7	Findings, Suggestions and Conclusion	7	Discussion
8	Bibliography(Uniform format)	8	Bibliography (Uniform format)
Uniformity in Suffix – contents			
Publications – Xerox of Abstracts/extended abstracts/Full papers			

q.

r. Bibliography: Arts &Science.

vi. Researcharticle:

Latha, P., Dhanabackialakshmi, R., Kumar, P.S. and Karuthapandian, S. 2016. Synergistic effects of trouble free and 100% recoverable CeO2/Nylon nanocomposite thin film for the photocatalytic degradation of organic contaminants. Separation and Purification Technology, 168(2): 124–133

vii. Conference / Seminar / Symposium papers

Peng, J., Zhang, X., Lei, Z., Zhang, B., Zhang, W. and Li, Q. 2009. Comparison of several cloud computing platforms. In: Proceedings of Second International Symposium on Information Science and Engineering, 23 –27

viii. Books

Versteeg, H.K. and Malalasekera, W. 2007. An Introduction to Computational Fluid Dynamics. II Edn. Pearson Education Ltd., New York, pp. 517

ix. Book Chapters

Wade, S.E. 1981. Statistical designs for survey research. In: Stempel, G.H. and Westley, B.H. (Eds.). Research methods in mass communication. Printice Hall India Learning India Ltd., New Delhi, pp. 167

x. Webreference

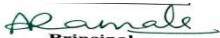
National Institute of Mental Health. 2018, July. Anxiety disorders. U.S. Department of Health and Human Services, National Institutes of Health. <https://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>

(Author to be included first, date to be included before month, if available)


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PEN – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 627011
SEMESTER IV

Programme: MA	Subject: English
Course code: 19PENC41	Course Title: British Poetry and Prose :Twentieth Century Literature
Category: Core – 17	Credits:4/ Hours : 6

Objectives:

- 1)
- To familiarize the students with the important trends in the Modern Age of English Literature.
- 2)
- To study the representative works of the Modern Agewriters

Units	Syllabus	Outcomes	Hours
1	Poetry 1.T.S. Eliot (America- British)- Preludes 2.W.B. Yeats(Ireland) - Second Coming 3.Wilfred Owen(England) -Strange Meeting	The students can 1. understand the concept of fragmentedworld 2. have an in-depth analysis of the effect of World WarII	12hrs
2	Poetry 1.Philip Larkin(United Kingdom) - Whitsun Weddings 2.Dylan Thomas (Wales) - Do Not Go Gentle into that Good Night 3.Siegfried Sassoon(England) - Glory of Women	The students can 1. learn the ideas and concepts of twentiethcentury 2. acknowledge the truth that the modern world is dark as it lacks spirituality	12hrs
3	Poetry 1.Robert Browning - My last Duchess 2.George Herbert - The Pulley 3.Ted Hughes – Work and Play	The Students can 1. analysis the soul of a selfishDuke 2. learn the metaphysicalpoems	12hrs
4	Prose 1. E.M. Forster - Does Culture Matter? 2.Bertrand Russel – Can We Affordto Keep OpenMinds?	The students can 1. understand and enjoy the artwhich is a mark ofculture 2. know the new regime for its denial of intellectualfreedom	12hrs
5	Prose 1.T.S. Eliot(American-British) -Tradition and Individual Talent 2.Francis Bacon –Of Revenge	The students can 1. thoroughly realize the importance of tradition inliterature 2. learn the concept like religion, personal wisdom, connectionsto other people, work, and moral quandaries	12hrs

Text Books:

S.no	Title	Author/s	Year of [Edn]	Publisher\s
1.	T. S. Eliot and the Concept of Tradition	GiovanniCianci/ Jason Hardly	2009	Cambridge University Press
2.	Bacon’s Essays	Francis Bacon	2019 (1)	Palala Press

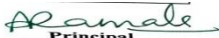
Reference Book

S.No	Title	Author/s	Year of [Edn]	Publisher\s
1.	An Anthology of British Poetry	Dr.P.C.James Daniel	2017 (1)	Manimekala Publishing House


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PEN – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 627011
SEMESTER IV

Programme: MA	Subject: English
Course code: 19PENC42	Course Title: New Literature
Category: Core – 18	Credits:4 / Hours : 6

- Objectives:
1.

The paper introduces the students to new authors in English of different countries.
2.

It also provides a wholesome understanding of literature all over the world.

Units	Syllabus	Outcomes	Hours
1	Poetry 1.Judith Wright (Australia)- The Harp and the King 2.Margaret Atwood(Canada) - Journey to the Interior 3.Langston Hughes (America) - I too,Sing America	The students can 1. acquire a wide understanding of time which is powerful, and it changes everything 2. get knowledge about the Civilization against the wilderness	12hrs
2	Poetry 1.Richard Blanco(America)- My Father in English 2.Vikram Seth (India) - All You Who Sleep Tonight 3.Carol Ann Duffy (British) - Prayer	The students can 1. gain an insight into the prayer which provide comfort in desperate time 2. understand a broad vision of life with universal problems	12hrs
3	Prose Arundhati Roy(India) – Walking with the Comrades	The students can 1. identify the moral character that shapes our actions for the rest of our life 2. understand a battle over power, ideology, land ,rights and ecology	12hrs
4	Fiction Chinua Achebe(Nigerian) - Arrow of God	The students can 1. become well acquainted with an intimate portrayal of a traditional culture facing the challenges of colonial presence and shifting times 2. understand the social,historical and political backgrounds of the world of the novelists	12hrs
5	Drama Wole Soyinka(Nigerian) - The Death of the King’s Horsemen	The students can 1. learn a real incident that took place in Nigeria during British colonial rule 2. generate a broad vision about the problem that throws off the community’s balances	12hrs

Text Books:

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Death and the King’s Horseman	Wole Soyinka,	2002 (3)	Norton Press
2	Arrow of God	Chinua Achebe	2010 (3)	Penguin Modern Classics

Reference Book

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	An Anthology of Commonwealth Poetry	C.D. Narasimhaiah	1990 (2)	Macmillan India Limited

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PEN – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 627011
SEMESTER III

Programme: MA	Subject: English
Course code: 19PENC43	Course Title: Post-Colonial Fiction and Drama
Category: Core – 19	Credits: 4/ Hours : 6

Objectives:

1.
- To familiarize the learners with the literary experience of writers from the post-colonial region.
2.
- To study the power of relations between different groups, cultures and literature.

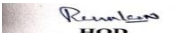
Units	Syllabus	Outcomes	Hours
1	1.AmitChaudhuri(India-England)-A New World 2.Handkureishi(London)- Londonkills Me	The students can 1. analyze the political and cultural issue and themes such as racialism and Culturalism. 2. sharply juxtaposes the two generations in the institution of family.	12hrs
2	1. Chitra Banerjee Divakaruni (India-USA)- Oleandar Girl 2. Lorraine Hansberry – A Raisin in the Sun	The students can 1. identify the culture and tradition of women characters. 2. obtain knowledge of political dimension and how it corrodes the society .	12hrs
3	1.Raja Rao (India)- The Serpent and the Rope Wole Soyinka (Nigerian) -. The Lion and the Jewel	The students can 1. confront the futuristic Bombay of the year 2010. 2. discuss the concepts of existence, reality, and fulfillment of one’s capabilities.	12hrs
4	1.Sunetra Gupta (India) - Memories of Rain 2.Girish Karnad (India)-Nagamandala	The students can 1. analyze the use of myth in Indian dramas. 2. understand the love caught in clash of two cultures	12hrs
5	1.Rohinton Mistry (Canada- India)- A Fine Balance 2.Jack Davis (Australia)- No Sugar	The students can 1. get knowledge about the emergency rule in India during the reign of Indira Gandhi. 2. analyse the miserable condition of refugees from east Bengal.	12hrs

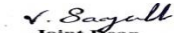
Text Books:

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	A New World	Amit Chaudhuri	2000 (1)	Penguin Modern Classics
2.	Oleandar Girl	Chitra Banerjee Divakaruni	2013 (1)	Penguin Modern Classics

Reference Book

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	Critical Essays on Post-Colonial Literature	Das Bijay Kumar	2012 (3)	Atlantic Publishers and distributors


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PEN – BOS- SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI
SEMESTER - IV

Programme: MA	Subject: English
Course code: 19PENC44	Course Title: World Literature in Translation
Category: Core – 20	Credits: 4/ Hours :6

Objectives:

1.
- To familiarize the learners about the translation inliteratures.
2.
- To explore the translated works and be familiar with the culture of differentplaces.

Units	Detailed Syllabus	Outcomes	Hours
1	Poetry 1.A.Z.Foreman(France)-Correspondences 2. W.S.Merwin(Chilean) - Tonight I Can Writethe Saddest	The students can 1. acquire the connection between human andnature. 2. analyze the reflection of persona’srelationship.	12hrs
2	Prose Linda Asher(Czeh) - The Art of Novel	The students can 1. focuson a philosophical text without the academic ornamentation. 2. enhance the novel’s spirit of complexity, irony andmoral ambiguity.	12hrs
3	Short Stories 1.DanielHuddelston(Japan)- Fin and Claw 2.Jeanne Tai(China)-Souls Tied to the Knots on a Leather Cord	The students can 1. know about genetics and enjoythe author’s extrapolation. 2. highlight the clash of modernization with the traditional primitive way oflife.	12hrs
4	Fiction M.Vijayalakshmi (India)- The Story of Sea Side Village	The students can 1. befamiliar with the fall of feudalism as the forces of modernity advance andtheir presence felt in a small and obscurevillage. 2. acquire knowledge from the literary work reflecting socialreality.	12hrs
5	Drama Sophocles - Oedipus Rex	The students can 1. obtainthe knowledge of an unforgettable portrayal ofhell. 2. know about class, casteand genderoppression.	12hrs

Text Books:

S.No	Title	Author/s	Year of [Edn]	Publisher\s
1.	The Art of Novel	MilanKundera	2005 (3)	Faber & Faber Publisher
2.	Oedipus Rex	Ramjihal	2018 (29)	Rama Brothers Publishers

Reference Book

S.No	Title	Author/s	Year of [Edn]	Publisher's
1.	A Text Book of Translation	Peter Newmark	1988 (12)	International Press

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PEN – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI- 627011
SEMESTER IV

Programme: MA	Subject: English
Course code: 19PENC45	Course Title: English Language Teaching
Category: Core – 21	Credits:4 / Hours: 6

Objectives

1.
- To promote four possible types of Teacher development: personal, organisational, and professional.
2.
- To improve the graduate outcomes for the students to ensure that they get access to employment/ self-employment or engage themselves in pursuit of higher education.

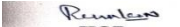
Units	Syllabus	Outcomes	Hours
1	Major trends in English Language Teaching: 1. A brief history of early developments. 2. Current status of English Language Teaching	The students can 1. look into the history of ELT 2. prepare herself to the teaching career	12hrs
2	Teaching English in India: 1. English as a medium of Instruction, and as a foreign Language 2. National Education Policy in Teaching of English	The students can 1. trace the role of English 2. understand the government policy in Teaching English	12hrs
3	Teaching Competency:- Approaches and Methods: 1. The Nature of Approach and Methods Content-Based Instruction and Content and Language Integrated Learning 2. Psychology of Learning and Teaching - Teaching Listening, Speaking, Reading, and Writing Skills - and Teaching of English Grammar through Literature in Higher Education with ICT	The students can 1. get introduction to approaches 2. use methods	12hrs
4	Concepts of Testing: 1. Fundamentals of Testing 2. Assessment Evaluation in English Classroom	The students can 1. go to advance level 2. enhance their teaching ability in Language Teaching	12hrs
5	Teacher/Faculty Induction Programme: 1. Soft Skills for Teaching practices (theory), and Peer Enhancement for Teaching Excellence 2. Teacher/Faculty (Guru-Dakshata) Development Programme	The students can 1. learn the usage of technology in English classroom 2. enhance evaluation skills	12hrs

Text Books

S.No	Title	Author/s	Year of [Edn]	Publisher's
1	English Language Teaching in India.	S.P.Dhanavel	2012 (1)	Tata-Mcgraw Hill Education,
2	Approaches and Methods in Language Teaching.	Jack C.Richards and Theodore S.Rodgers	2016 (1)	Cambridge University Press
3.	Teaching Primary English.	Jackie Brien	2013 (1)	Sage Publications

Reference Book

S.No	Title	Author/s	Year of [Edn]	Publisher's
1	Teach English: A Training Course for Teachers	Adrian Doff	1998 (1)	Cambridge University Press
2	Discourse Analysis for Language Teachers	Michael McCarthy	2010 (1)	Cambridge University Press
3	Models of Teaching	Bruce Joyce, and Marsha Well	1967 (1)	Prentice-Hall house


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Institution recognised u/s 2(f) and 12(B) of UGC & Reaccredited with “A” grade by NAAC
(A branch of Sri Ramakrishna Tapovanam, Thirupparaitturai)
Ariyakulam, Thoothukudi NH, Maharaja Nagar Post,
TIRUNELVELI – 627 011

DEPARTMENT OF ENGLISH

MPhil English

S.No.	Sem	Course Code	Category	Course Title	Credits	Hrs/Wk	Page. No
1.	I	19MENC11	Core –I-	Research and Teaching Methodology	4	4	1
2.	I	19MENC12	Core—II	Critical Theory	4	4	2
3.	I	19MENC13	Core—III	Women’s Literature	4	4	3
4.	II			Project and Viva Voce	12	-	
Total No. of Papers L+P=3+1=4					24		


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MEN – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011

SEMESTER I

Programme: M.Phil	Subject: English
Coursecode:19MENC11	Research and Teaching Methodology
Category: Core-I	Credits:4

- Objectives:
1. To introduce the students to the research methodology associated with future courses in literature.
 2. To make the students understand the methodology of research

Outcomes:

Upon the completion of the course the students can:

- 1.Demonstrate knowledge of research processes (reading/ evaluating and developing)
- 2.Identify, explain, compare and prepare key elements of a research proposal/report.

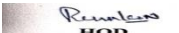
Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Meanings and objectives of research Research in language and literature, Materials and tools of research (books, anthologies, thesauruses, encyclopedias, conference proceedings, unpublished thesis, newspaper articles, journals, govt. publications, e-journals, web references, research cities, printed and web indexes, etc. e-mail discussions groups, special libraries. Advanced study centers, virtual libraries, web search engines, etc.)	12
2	The Process of research Selecting a project: the survey of relevant literature: defining aims and objectives: designing hypothesis: scope and limitations: preparing a research proposal: planning, etc. – Mechanics of research.	12
3	Presentation of research Title, aims and objectives: research format: avoiding plagiarism: quoting and creating in-text citations (documentation); research findings; using standard style sheets, Abbreviations	12
4	Language, style and types of discourses Diction, the style suitable for a literary thesis, Narration, Argumentation, Explosion, Description, Affective Fallacy. Dissociation of Sensibility, Figurative; Language, Intentional Fallacy, Objective Correlative, Pathetic fallacy, Point of view, Satire.	12
5	Methodology of Teaching (12 Hours) Teaching – Objectives of Teaching, Phases of Teaching- Teaching Methods; Lecture Method, Discussion Method, Discovery Learning, Inquiry, Problem Solving Method, Project Method, Seminar – Integrating ICT in Teaching: Individualised Instruction, Ways for Effective Presentation with Power Point – Documentation – Evaluation ; Formative, Summative & Continuous and Comprehensive Evaluation – Later Adolescent Psychology: Meaning, Physical, Cognitive, Emotional, Social and Moral Development – Teaching Later Adolescents.	12

Text Books

S.No	Title of the Book	Author	Edition, Year	Publication
1	MLA Handbook for Writers of Research paper	Gibaldi	8 th Edition	-

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	The Cambridge Encyclopedia of English Language	David Crystal	1994	Cambridge University Press
2	Pragmatic, Stylistics	Black Elizabeth	2006	Edinburg University Press


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Programme: M.Phil	Subject: English
Course code: 19MENC12	Course Title: Critical Theory
Category: Core –II	Credits:4

- Objectives:
1. To acquaint the learners with the various literary theories.
 2. To make the students appreciate and criticize texts and works of art themselves.
- Outcomes:

Upon the completion of the course the students can:

1. Define and apply specific theoretical concept, theories and terms to literary and cultural texts.
2. Illustrate and successfully defend their points of view using the concepts their arriving at logical appropriateness and understanding.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Theory after Theory (12 Hours) 1. Peter Barry -- Legacies of Theory – Presentism – Presentism in practice – New Aestheticism – New aestheticism in practice – What to read on new aestheticism – Cognitive poetics – Cognitive poetics in practice – What to read on cognitive poetics. 2. Jonathan Culler – Structuralism and Literature	12
2	Marxist literary theories (12 Hours) Christopher Caudwell - Marxist Criticism Roland Barthes - Andy Stafford and Susan McManus Moyra Haslett - The politics of literature: Marxist Literary Theories	12
3	Feminist Theory (12 Hours) Helene Cixous – Julia Dobson Ruth Robbins - Will the real feminist theory please stand up? Elaine Showalter - Feminist Criticism in the Wilderness	12
4	Deconstruction (12 Hours) Paul de Man – The Resistance to Theory Julian Wolfreys – Deconstruction, what remains unread	12
5	Postmodernism (12 Hours) Cleanth Brooks - The Primacy of the Reader Arkady Plotnitsky – Postmodernism and Postmodernity	12

Text Books

S.No	Title of the Book	Author	Edition Year	Publication
1	Beginning Theory: An Introduction to Literary and Cultural Theory	Peter Barry	3 rd Edition	Manchester University Press

Reference Books:

S.No	Title of the Book	Author	Edition Year	Publication
1	Contemporary Critical Theories from Lacan to Said	Ed. Jon Simons	1 st Edition	Edinburg University Press
2	Contemporary Criticism an Anthology	Ed. V.S. Sethuraman	2 nd Edition	Macmillan Publication


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MEN – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011

SEMESTER I

Programme: M.Phil	Subject: English
Course Code : 19MENC1	Course Title: Women’s Literature
	Credits:4
Category: Core - III	Hours: 6

- Objectives:
- 1. To sensitize the learners on the issues of women.
 - 2. To analyze and interpret the various voices raised in support of women and to contribute towards women empowerment.

Outcomes:

Upon the completion of the course the students can:

- 1.Analyse the ways in which societal institutions and power structures impart the material realities of women’s lives.
- 2.Engage in promoting social justice and human rights.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Prose Virginia Woolf – Modern Fiction Arundhati Roy -- Walking with the Comrades Jean Rhys - The Day they Burned the Books	12
2	Poetry Carol Ann Duffy - “Anna Hathaway”, “Onion” Sylvia Plath - “Daddy”, “The Colossus” Kamala Wijeyaretna - “On Seeing a White Flag Across a Road” ImtiazDharkar - “Purdah I” Maya Angelou - Phenomenal Woman	
3	Drama Susan Glaspel - Trifles Vinodini – Thirst Lorraine Hansberry -- What Use are Flowers?	12
4	Fiction Jeannette Winterson -- Oranges are not the Only Fruit Mahasweta Devi – Draupadi	12
5	Fiction (12 Hours) Bama – Karukku ChimamandaNgoziAdichie – Half of a Yellow Sun Chitra Banerjee Devakaruni - Sister of My Heart	12

Text Books

S.No	Title of the Book	Author	Edition, Year	Publication
1	Women Race and Class	Davis Angela	2011	Vintage Publication
2	Contemporary British Fiction	Nick Vently	2008	Routledge

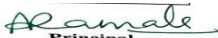
Reference books

S.No	Title of the Book	Author	Edition, Year	Publication
1	Oranges are not the only Fruit	Jeanette Winterson	2014	Vintage Publication
2	Handbook of Gender and Women’s Studies	Cathy Davis, Mary Evans	1 st Edition2006	Sage Publications


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SRI SARADA COLLEGE FOR WOMEN
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TIRUNELVELI – 627 011 DEPARTMENT OF ENGLISH
CERTIFICATE PROGRAMME
CERTIFICATE IN SOFT SKILL

1. COURSE TITLE : SoftSkill
2. OBJECTIVES:

To give each student realistic perspective of work and workexpectations

To guide students in making appropriate and responsibledecisions

To create a desire to fulfill individualgoals.
3. OUTCOME

The students can enhance careeropportunities

The students get the accuracy, efficiency inwriting

The students can gain confidence and high self-esteem

4. SYLLABUS /UNITS UNIT-I
Language Skills: LSRW, Types and Process of Communication, Strategies of Communication, Barriers to Communication, Body Language.

UNIT – II
Interview Skills: Extempore, Power Point Presentation, Public speaking, Group discussion, Debate, Panel discussion, Types of interview, Dress code, mock interview.

UNIT – III
Writing Skills: Professional Resume’, Letters: Application, Acceptance, Denial & complaint, Statement of Purpose (SOP), Report, Proposal, Writing in the social media, Agenda, Minutes, Book review, Film review.

UNIT – IV
Personality Development: Goal setting, Self Confidence, Positive Thinking, Team Building, Leadership Skills, Time Management, Stress Management, Decision making, creative thinking.

UNIT – V
Preparation for Competitive Examinations: Reasoning: Number series, blood relations, directions, finding the next numbers, missing letters & odd one.

Current Affairs: Regional, national & international events, Geographical, political and historical facts Analogy

Reference Books:

S. No	Title of the Book	Author's	Year of [Edn]	Publications
1.	Developing Communication Skills	Krishna Mohan &MeeraBanerji	II Ed., 2009	Laxmi Publications
2.	Mastering Communication Skills and Soft Skills	N.Krishnaswamy	I Ed,2015	Bloomsbury India
3.	Communication Skills for Dummies	Elizabeth Kuhnke	I Ed., 2012	John Wiley & Sons; UK edition

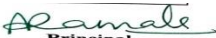
5. ELIGIBILITY FORADMISSION
Minumum+2 (Open to all on their options)
6. DURATION OF THE COURSE: 35 Hours(1Semester)
7. EXAMINATION /EVALUATIONCOMPONENTS

INTERNAL 40	EXTERNAL – 60
Average of Two test = 20 marks Assignment = 5 marks Quiz= 5 marks Field Visit / Case Study /Record =10 marks	Section A - True or False = 10 marks Section B – 5 out of 8 (4 marks) = 20 marks Section C – 3 out of 5 (10 marks) = 30 marks


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TIRUNELVELI – 627 011 DEPARTMENT OF ENGLISH
CERTIFICATE PROGRAMME
CERTIFICATE IN BUSINESS ENGLISH

1. COURSE TITLE: BusinessEnglish
2. OBJECTIVES:
 - To develop basic skills to deal with people in businesssituations
 - To increase their knowledge of key business conceptsworldwide
3. OUTCOME:

After the completion of the course the students can :

 - write and read basic business reports, letters andmemos
 - develop confidence to deal with people and basic issues in thebusiness world.
4. SYLLABUS /UNITS UNIT-I
Communication in Business, Avoid Commercial Jargon, Creating Goodwill in Correspondence
UNIT - 2
A Good Business Letter, Sales Letters, Circular Letters, Trade Enquiries, Trade Order, Confirmation of Orders, MakingPayments
UNIT – III
Application for Situation, Correspondence with the Government, Agenda and Minutes, Drafting of Reports
UNIT – IV
Banking Letters, Insurance Correspondence
UNIT – V
Agency Correspondence, Import Trade Correspondence, Export Trade Correspondence, Letters to Editors and Complaints of Personnel, Public Relations Letters, Modern Technology

Reference Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1.	Modern Commercial Correspondence	R.S.N Pillai Bagavathi	2010	S. Chand Publishing
2.	Developing Communication Skills	Krishna Mohan &MeeraBanerji	2011	Macmillan India Press

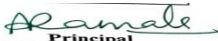
5. ELIGIBILITY FORADMISSION
Minumum+2 (Open to all on their options)
6. DURATION OF THE COURSE: 35 Hours(1Semester)
7. EXAMINATION /EVALUATIONCOMPONENTS

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Average of Two test = 20 marks Assignment = 5 marks Quiz= 5 marks Field Visit / Case Study /Record =10 marks	Section A - True or False = 10 marks Section B – 5 out of 8 (4 marks) = 20 marks Section C – 3 out of 5 (10 marks) = 30 marks


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TIRUNELVELI – 627 011 DEPARTMENT OF ENGLISH
CERTIFICATE PROGRAMME
DIPLOMA IN FUNCTIONAL ENGLISH

1. COURSE TITLE: FunctionalEnglish

2. OBJECTIVES:

- To communicate effectively and appropriately in real-lifesituation
- To learn how to identify the barriers in effective communication

3. OUTCOME OF THECOURSE:

After the completion of the course the students can :

- frame grammatically correct sentences and speak fluent English acrossa wide range ofsituations.
- develop professional writing skills.

4. SYLLABUS /UNITS UNIT-I

Language and Literary Skills

Figure of Speech, Simile, Metaphor, Irony, Personification, Hyperbole, Alliteration (identifying the same in a given passage)

Idioms and Phrases One Word Substitution UNIT – 2

Developing Conversational Ability

Greetings and Introductions, Participations in brief conversations – at office, at railway station, at airport, at travel agency, at bank, at doctor’s clinic, at hospital etc.

UNIT – III

Writing Skills

Essay writing, e-mail writing, appointments, different types of business correspondence; arranging appointments, reports and proposals other business writing – memos, circulars, notice agenda, minutes, advertising

UNIT – IV

Functional Reading

Reading Official Letters and Profiles Reading Online Content

Reading Comprehension, Description and Narration (Objects, Places and People) Reading News Reports/ Newspapers

UNIT – V

Interview Skills

Concept and process, pre-interview planning, opening strategies, answering strategies, interview through tele and video-conferencing, practice sessions.

Reference Books

S.No	Title of the Book	Author/s	Year of [Edn]	Publications
1.	Embark: English for Under Graduates	Steve Hart and Aravind Nair	2012	Cambridge
2	Communication Skills	Sanjay Kumar and PushpLata	2013	Oxford University Press

5. ELIGIBILITY FORADMISSION

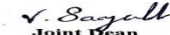
Minumum+2 (Open to all on their options)

6. DURATION OF THE COURSE: 65 Hours (2Semester)

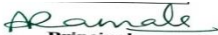
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TIRUNELVELI – 627 011 DEPARTMENT OF ENGLISH
CERTIFICATE PROGRAMME
DIPLOMA IN MONTESSORI AND CHILD EDUCATION

1. COURSE TITLE: Montessori and ChildEducation
2. OBJECTIVES:
 - To train the students with in-depth knowledge and develop the overall personalities
 - To teach them in the simplest manner with a creative touch for their placement in schools
3. Outcomes
 - The Students enhance their softskills
 - The students can understand childrenpsychology
4. SYLLABUS /UNITS UNIT–I
- Introduction: Principles of Education, Education and Philosophy, Child Centric Education, Co-Curricular Activities in Primary Education
- UNIT – 2
- Montessori and Pre-Primary Education:
- Life of Montessori, Development of Montessori Method, Montessori Environment, Montessori Method and Other Pre-Primary Education Systems.
- UNIT – III
- Child Psychology and Learning Process: Child Psychology, Growth and Development of Child, Developmental Characteristics of Children in the Pre-School years, Individual Difference, Motivation and Creativity, Learning Process
- UNIT – IV
- Health and Hygiene with Nutrition: Health and Hygiene, Mother and Child, Child’s Health, Personal Cleanliness, Child and Safety Measures
- UNIT – V
- Preschool and Personal Management: Aims of Educational Management, Educational Administration, Functional of Education Management, Institutional Planning, Curriculum.

Reference book

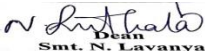
S.No	Title of the Book	Author	Edition, Year	Publication
1.	Montessori: A Modern Approach	Paula Polk Lillard	1991	Schocken Books
2.	The Montessori Method: Scientific Pedagogy as Applied to Child Education in “The Children’s Houses’ with Additions and Revisions by the Author	Maria Montessori	1912	Frederick A. Stokes Company

5. ELIGIBILITY FORADMISSION
- Minumum+2 (Open to all on their options)
6. DURATION OF THE COURSE: 65 Hours (2Semester)
7. EXAMINATION /EVALUATIONCOMPONENTS

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Degree UG: Subject: ECONOMICS

Programme Structure (2019-2022)

Sem	Part	Category	Course Code	Course title	Hours/week			Credits	Page.No
					L	P	T		
1		II Language	19P1TA1/ 19P1SA1	Tamil/Sanskrit	6	0	6	4	
1		II Language	19P2EA1	English	6	0	6	4	
1		III Core-1	19UECC11	Micro Economics-I	6	0	6	4	3
1		Core-2	19UECC12	Statistical Methods-I	6	0	6	4	4
1		Allied-1	19UECA11	Principles of Advertisement	4	0	4	3	5
1		IV Common	19UCES11	Environmental Studies	2	0	2	2	
				Sub Total	30	0	30	21	
2		II Language	19P1TA2/ 19P1SA2	Tamil/Sanskrit	6	0	6	4	
2		II Language	19P2EA2	English	6	0	6	4	
2		III Core-3	19UECC21	Micro Economics-II	6	0	6	4	6
2		Core-4	19UECC22	Statistical Methods-II	6	0	6	4	7
2		Allied-2	19UECA21	Agricultural Economics	4	0	4	3	8
2		IV Common	19UCVE21	Value Based Education	2	0	2	2	
				Sub Total	30	0	30	21	
3		II Language	19P1TA3/ 19P1SA3	Tamil/Sanskrit	6	0	6	4	
3		II Language	19P2EA3	English	6	0	6	4	
3		III Core-5	19UECC31	Mathematical Methods	6	0	6	4	9
3		Allied –3	19UECA31	International Economics	6	0	6	3	10
3		Skill Based – 1	19UECS31	Professional Techniques of Management	4	0	4	4	11
3		IV NME –I	19UNEC3A 19UNEC3B	Essentials of Economics Economics of Insurance	2	0	2	2	12
3		V Common	19UCYP31	Yoga Theory and Practice	0	0	0	1	
				Sub Total	30	0	30	22	
4		II Language	19P1TA4/ 19P1SA4	Tamil/ Sanskrit	6	0	6	4	
4		II Language	19P2EA4	English	6	0	6	4	
4		III Core-6	19UECC41	Mathematical Economics	6	0	6	4	13
4		Allied- 4	19UECA41	International Economic Theories and Policies	6	0	6	3	14
4		Skill Based -2	19UECS41	Entrepreneurial Enhancement	4	0	4	4	15
4		IV NME -2	19UNEC4A 19UNEC4B	Issues in Indian Economy Economics of Salesmanship	2	0	2	2	16
4		Common	19UDCE41	Computer for Digital Era	0	0	0	1	
4		V Common	19UNCC41/19UNSS41/19UYRC41/19URRC41/19UPESY41/19UC CC41/19USSS41/ 19UCGC41	Extension Activity (NSS/NCC/YRC/RRC/PESSY/CCC/SS/CGC)	-	0	-	1	
				Sub Total	30	0	30	23	
5		III Core -7	19UECC51	Basics of Macro Economics	5	0	5	5	17
5		III Core-8	19UECC52	Money and Banking	6	0	6	5	18
5		III Core-9	19UECC53	Indian Economy	6	0	6	5	19
5		III Core-10	19UECC54	Industrial Economics	5	0	5	5	20
5		IV Common	19UPDC51	Personality Development	2	0	2	2	
5		IV Common	19UECCP51	Economics for Competitive Examination & Project	6	0	6	8	21& 22
				Sub Total	30	0	30	30	
6		III Core-11	19UECC61	Macro Economic Theory and Practice	6	0	6	5	24
6		III Core-12	19UECC62	Public Finance	6	0	6	5	25
6		III Core-13	19UECC63	Planning and Growth	6	0	6	5	26
6		III Core -14	19UECC64	Labour Economics	6	0	6	5	27
6		III Core- 15	19UECC65	Economic Thinkers	6	0	6	5	28
				Sub Total	30	0	30	25	
				Total				142	

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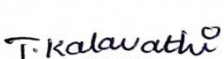
Department of Economics

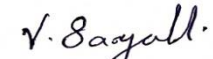
Programme Outcomes (POs)

PO1	The course is so designed that the understand the role of Economics in our society.
PO2	Students will able to describe how economic trade-offs and social values impact public/private policy.
PO3	Students improve their skills of handling Economics making employable.
PO4	The branches of Economics Micro Economics, Statistical Methods, Agricultural Economics, International Economics, Mathematical Methods, Entrepreneurial Development, Macro Economics, Public Finance, Money and Banking, Indian Economy and Labour Economics expose the diversified aspects of Economics wherethe students experience a broader outlook of the subject.
PO5	It guides the students for business decision and to analyse marketing techniques.
PO6	Students will be able to explain how fiscal and monetary policies can be used to promote equity.

Programmes Specific Outcomes (PSOs)

PSO1	To build a strong foundation of knowledge in different areas of Economics.
PSO2	To develop the skill of applying concepts and techniques used in Economics.
PSO3	To integrate knowledge, skill and attitude that will sustain an environment of learning and creativity among the students.
PSO4	To expose students about entrepreneurship skill to become an entrepreneur.
PSO5	Students know and act on the economic trends, fiscal policies and also the different administrative sectors.
PSO6	Students can apply for any government examination like TNPSC, UPSC, Bank exams, Share markets.


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SEMESTER I

Programme: B.A	Subject: ECONOMICS
Course code: 19UECC11	Course Title: Micro Economics –I
Category: Core-1	Credits: 4

- Objectives:**
- To enable the students to understand the basic concepts of economics.
 - To develop the market structure and distribution theories.

Units	Syllabus	Outcomes	Hours
I	INTRODUCTION: Definition of Economics – wealth-welfare-scarcity and growth -Main Divisions of Economics – Subject matter of Micro Economics – Importance and Limitations – Distinction between Micro and Macro Economics – Economic Laws and Economic Systems – Basic Concepts .	The students can • understand the basic concept of economics, • know the difference between micro and macro economics, • evaluate the economics systems and laws.	18
II	CONSUMPTION: Meaning-Importance of Consumption- Human wants- Meaning-Characteristics –Types –Utility-types- Law of Diminishing Marginal Utility – Law of Equi marginal utility – Law of Demand – Elasticity of demand – types – Factors determining elasticity of demand – Measurement of Elasticity of Demand.	The students can • understand the importance of consumption, • evaluate the relationship between price and demand, • analyse the measurement of elasticity of demand.	18
III	INDIFFERENCE CURVE ANALYSIS: Indifference Curve Analysis – Properties of Indifference Curves – Marginal Rate of Substitution - Consumer’s equilibrium in terms of indifference curves – Price Effect – Income effect – Substitution effect – Uses of IC Analysis –Consumer surplus- Measurement of consumer surplus with IC Analysis.	The students can • know the properties of indifference curve, • analyse the consumer’s equilibrium, • evaluate the substitution effect.	18
IV	PRODUCTION: Meaning of Production – Factors of production – Characteristics – Theories of Population – Theory of Demographic Transition-Capital-Capital formation – Organization-Types of Organization-Functions of Entrepreneurs -Division of Labour – Merits and Demerits –Economies of scale- Large and Small scale Production –Merits and Demerits.	The students can • evaluate the theories of population, • understand the functions of entrepreneurs, • analyse the factors of production.	18
V	PRODUCTION FUNCTION: Production possibility curve- Meaning-Features – Production Function – Types of Production Functions – Law of Variable proportion – Law of Diminishing Returns – Law of increasing Returns – Law of constant Returns - Law of Returns to Scale – Cobb-Douglas Production Function – Euler’s Theorem – C.E.S. Production Function	The students can • understand the production possibility curve, • know the types of production function, • analyse the Cobb-Douglas production functions.	18

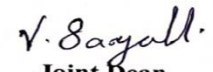
Text Books:

S.No	Title of the Books	Author/s	Year (Edn)	Publisher/s
1.	Micro Economic Theory	M.L.Jhingan.	2013 (14)	Virinda Publications(p)Ltd.
2.	An Introduction to Micro Economics	Dr.D.Bose & Marimuthu	2016 (2)	Himalaya Publishing House

Reference Books:

S.No	Title of the Books	Author/s	Year (Edn)	Publisher/s
1.	Micro Economics	M.John Kennedy	2001 (2)	Himalaya Publishing House
2.	Principles of Micro Economics	H.L.Ahuja	2006 (14)	S.Chand Publishing., New Delhi.
3.	Principles of Micro Economics	I.C.Dhingra & V.K.Garg	2010 (3)	Virinda Publications(p)Ltd
4.	Principles of Micro Economics	I.C.Dhingra & V.K.Garg	2010 (3)	Virinda Publications(p)Ltd


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SEMESTER I

Programme: B.A	Subject: ECONOMICS
Course code: 19UECC12	Course: Title: Statistical Methods-I
Category:Core-2	Credits:4

- Objectives:**
- To enable the students to understand the use of statistical tools in research.
 - To evaluate the diagrammatic and graphic presentation and frequency distribution.

Units	Syllabus	Outcomes	Hours
I	INTRODUCTION: Horace Sacristy’s Definition of statistics and explanations – Characteristics of Statistics-Importance of statistics in economics –Functions of Statistics- Limitations of Statistics-collection of data – primary and secondary data – sampling – census and sample method – methods of sampling.	The students can • formulate correct basic concepts, • know the functions of statistics, • analyse the primary andsecondary datas.	18
II	CLASSIFICATION AND TABULATION: Classification of data – Meaning and objectives of classification –Features of Classification-Rules of data, Classification- types of classification – discrete and continuous frequency distribution – Tabulation – Parts of tables – rules of tabulation – types of tables. Diagrammatic and graphic presentation of data – Rules for constructing diagrams – graphs of time series data- Advantages of Diagrammatic and graphic presentation and frequency distribution.	The students can • evaluate the graphic presentationof data, • understand the rules of tabulations and types of tables, • analyse the frequencydistribution.	18
III	AVERAGES: Averages – Qualities of a good average – types of averages – Arithmetic Mean, Merits and Demerits, Median Merits and Demerits , Mode Merits and Demerits, Geometric Mean and Harmonic Mean Merits and Demerits – Relative merits and demerits. (simple problem)	The students can • evaluate the qualities of a good average and types of averages, • analyse the mean, median and mode, • understand the simple problems.	18
IV	UNIT DISPERSION: Introduction-Definition-Concept of Variation- Purpose of measuring variation- Measures of Dispersion – Qualities of good measure of dispersion – Types of dispersion Merits and Demerits –Range- Meaning-merits and demerits ,uses-Inter Quartile Range, Quartile deviation Merits and Demerits – Mean deviation- Merits and Demerits – Standard deviation– absolute and relative measures.	The students can • create the quantitative models to solve the problems, • understand the good measures of dispersion, • evaluate the quartile range and quartile deveations.	18
V	SKEWNESS AND KURTOSIS: Introduction-Meaning- Skewness –Test of skewness -Dispersion and skewness - Objectives – Types-Karl Pearsons Coefficient of Skewness – Measures of Skewness Merits and Demerits – absolute and relative measures –Moments-Meaning- Four types of moments – Kurtosis.	The students can • analyse the test of skewness, • evaluate Karl pearsons coefficient of skewness, • know thw absolute and relative measures.	18

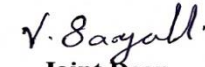
Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Statistical Methods	S.P.Gupta	2011 (49)	Sultan Chand & Sons, New Delhi
2.	Statistics	R.S.N.Pillai & Mrs.Bagawathi	2006 (8)	Sultan Chand & Sons, New Delhi

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Basic Statistics	B.L.Agarwal,	2009 (3)	New Age International New Delhi.
2.	Economics Statistics	D.M.Mithani,	2001 (2)	Oxford & IPH Publishing Company, New Delhi.
3.	Introduction to Statistics	Girija, M.Sasikala.L, and Girija Bai	2005 (3)	Vrinda publications, New Delhi


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SEMESTER I

Programme: B.A	Subject: ECONOMICS
Course code: 19UECA11	Course Title: Principles of Advertisement
Category: Allied-1	Credits:3

- Objectives:**
- To understand the advertising strategies and budget.
 - To evaluate the effectiveness of an advertising and electronic media.

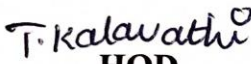
Units	Syllabus	Outcomes	Hours
I	INTRODUCTION: Meaning – Definition – Features and importance of Advertising – types of Advertising- Functions of Advertising- Difference between Advertising and Advertisement –Advertising and Publicity-Advertising and Salesmanship.	The students can • understand the importance of advertising, • analyse the difference between advertising and advertisement, • evaluate the effectiveness of an publicity.	12
II	ADVERTISING MEDIA: Meaning –Characteristics of Advertising media – Need and importance of Advertising Media-Media planning-Media scheduling- selection – Factors influencing selection of Advertising media - Procedures in selecting media type-Difficulties in Selecting media type – Display Advertising.	The students can • know need and importance of advertising media. • analyse the factors influencingselection of media, • evaluate difficulties in media type.	12
III	PRESS ADVERTISING: Indoor Advertising - Newspapers Advertising- Features and Types of Newspaper Advertising-Merits and Demerits of Newspaper Advertising- Foreign papers, Magazines – magazine Circulation-Merits and Demerits-Miscellaneous Types Importance of Indoor Advertising.	The students can • understand how to select appropriate advertising media, • analyse the features and types of newspaper advertising, • evaluate foreign papers andmagazines circulation.	12
IV	OUTDOOR ADVERTISING: Meaning-Need-Features – Forms of outdoor Advertising –Classification of Outdoor Advertising- Posters, Railway Stations, Vehicular Advertising - merits and demerits - Importance of outdoor Advertising – Indoor vs Outdoor Advertising.	The students can • know the forms of outdooradvertising, • analyse indoor and outdooradvertising, • understand the posters and railway stations.	12
V	ELECTRONIC MEDIA: Radio Advertising –Merits of Radio Advertising- Demerits of Radio Advertising- Television Advertising –Merits of TV Advertising- Demerits of TV Advertising-Media of Advertising other media- Film Advertising – Limitations of FilmAdvertising -Internet – Audio – Visual. Cassettes – screen slides- Electronic signs.	The students can • analyse the radio advertising, • know the merits and demerits of television advertising, • understand the internet audio,videoand visual advertising.	12

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Advertising	Verma&Agarwal	1982 (1)	King’s Books New Delhi.
2.	Reality in Advertising	Rosser Reeves.	2015 (2)	Alfred Aknopf, Newyork

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Advertising and Personal Selling	C.B.Gupta	2010 (4)	Sultan Chand & Sons „New Delhi
2.	Advertising Sales and Promotions	Debraj Datta	2008 (1)	Virunda Publications
3.	Salesmanship and Publicity	Dr.Rustom S. Davar	2003 (2)	Vikas Publications


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SEMESTER II

Programme: B.A	Subject: ECONOMICS
Course code: 19UECC21	Course Title: Micro Economics –II
Category:Core-3	Credits:4

- Objectives:**
- To enable the students to understand the concept of cost, revenue, price determination and profit theories.
 - To analyse the consequences of the government setting a binding price floor.

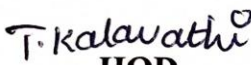
Units	Syllabus	Outcomes	Hours
I	COST AND REVENUE: Cost-Meaning-Cost concepts – Fixed cost and Variable cost – Average cost and Marginal cost – Short run cost curves – Long run cost curves. Revenue-Meaning-Revenue concepts – Revenue curves under different market conditions – Time element.	The students can • know the fixed cost and variable cost, • analyse the short run and long run cost curves, • understand the different market conditions.	18
II	MARKET THEORIES: Market-Meaning-Classification of Markets- Perfect competition – Features – Price determination – Equilibrium of firm and industry. Monopoly – Types – Features – Price Determination – Discriminating Monopoly –Types – Price Determination – Monopolistic competition – Features – Price determination	The students can • understand the price determination, • analyse the equilibrium of firm and industry, • evaluating the discriminating monopoly.	18
III	DISTRIBUTION THEORY: Meaning and Types of Distribution-The marginal Productivity Theory of Distribution – -Rent – Ricardian Theory of Rent – Quasi – Rent – Modern Theory of Rent – Rent and Transfer earnings – Rent and prices.	The students can • analyse the types of distribution, • evaluate the Ricardian theory of distribution, • understand the modern theory of rent.	18
IV	WAGES: Meaning- Definitions – Kinds - Wages –Money wage – Real Wage – Factors Determining Real Wages - Minimum Wages- Difference in wage –Theories of wages – (Marginal productivity theory of Wages &Modern Theory of Wages)	The students can • understand the kinds of wages, • analyse the factors determining real wages, • know the theories of wages.	18
V	INTEREST AND PROFIT: Meaning-Definition- Kinds - Interest – Net Interest – Gross Interest – Theories of interest – Liquidity preference theory – Neo- Keynesian Theory – Liquidity Trap - Loan able fund theory – Profit –Net Profit – Gross Profit – Theories of Profit – Risk and un-certainty theories –Dynamic theory of profit.	The students can • evaluate the gross and net interest, • understand the liquidity preference theory, • analyse the risk and uncertainty theories.	18

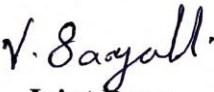
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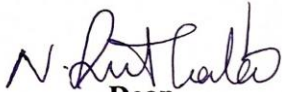
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1.	Micro Economic Theory	M.L.Jhingan.	2013 (14)	Virinda Publications(p)Ltd.
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SEMESTER II

Programme: B.A	Subject: ECONOMICS
Course code: 19UECC22	Course Title: Statistical Methods-II
Category: Core-4	Credits: 4

- Objectives:**
- To learn and recognize the connections between theory and applications.
 - To learn and apply the tools of formal inference, in statistics.

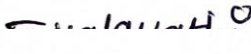
Units	Syllabus	Outcomes	Hours
I	CORRELATION AND REGRESSION: Meaning – Types of Correlation- Merits and Demerits – Karl Pearson’s Co-efficient of Correlation – Rank Correlation – Concurrent deviation , Regression : Meaning – Uses of Regression analysis – difference between correlation and regression analysis – regression line equations. Merits and Demerits	The Students can - know the types of correlation, - analyse the rank correlation, - understand the differencebetween correlation and regression analysis.	18
II	ANALYSIS OF TIME SERIES: Secular Trend – Seasonal Variations – Measurement of trend – Free hand or Graphic Method Merits and Demerits – Semi average method Merits and Demerits – Moving area method Merits and Demerits – Method of least squares Merits and Demerits .	The Students can - analyse the seasonal variations, - understand free hand or graphic method, - evaluate the method of least squares.	18
III	INDEX NUMBER: Uses, Problems in the construction of Index Number – Methods of Constructing index number- Laspeyre’s method – Paaschel’s method – Bowley’s method – fisher’s ideal index number – Test of index number – Chain Index Number – Consumer Price.	The Students can - Analyse the problems in the construction of index number, - Know the importance of index numbers, - Evaluate the consumer prices.	18
IV	PROBABILITY: Definition – mutually exclusive events – independent and dependent events – Equally likely events – Simple and Compound events – exhaustive events – addition and multiplication theorems and problems .	The Students can - Learn about mutually exclusive events, - Analyse the dependent and independent events, - Understand the addition and multiplication theorems.	18
V	ASSOCIATION OF ATTRIBUTES: Meaning – Uses – Consistency of data – Methods of studying association – Yuel’s co-efficient.	The Students can - Recognize between theoriesand problems, - Analyse the consistency of data, - Understand the consistency of data.	18

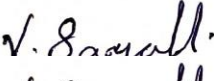
Text Books:

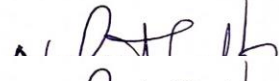
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1.	Statistical Methods	S.P.Gupta	2011 (49)	Sultan Chand & Sons ,New Delhi
2.	Statistics,	R.S.N.Pillai & Mrs.Bagawathi,	2006 (8)	Sultan Chand & Sons ,New Delhi

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1.	Basic Statistics	B.L.Agarwal,	2009 (3)	New Age International New Delhi.
2.	Economics Statistics	D.M.Mithani,	2001 (2)	Oxford & IPH Publishing Company, New Delhi.
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SEMESTER II

Programme: B.A	Subject: ECONOMICS
Course code: 19UECA21	Course Title: Agricultural Economics
Category: Allied-2	Credits: 3

- Objectives:**
- To acquire the nature and scope of Agricultural Economics.
 - To understand the causes of low productivity in Indian agriculture.

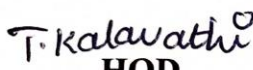
Units	Syllabus	Outcomes	Hours
I	INTRODUCTION TO AGRICULTURAL ECONOMICS: Meaning- Definition- Nature and Scope of Agricultural Economics- Interrelationship between Agriculture and industry – causes of low productivity in Indian Agriculture – solutions.	The students can - learn the scope of agricultural economics, - understand the interrelationship between agriculture and industry, - analyse the causes of low productivity in Indian agriculture.	12
II	AGRICULTURAL HOLDINGS: Meaning of Agricultural Holdings- Size of Holdings- Subdivision and Fragmentation of Holdings – Causes for Small Holdings- Advantages and Disadvantages of Small Holdings.	The students can - analyse the agricultural holdings, - know the fragmentation of holdings, - evaluate the advantages and disadvantages of holdings.	12
III	AGRICULTURAL PRICING: Fluctuation in Agricultural prices – Causes and Impact – Price Stabilization- Agricultural Price Policy- Role of CACP – Minimum of Support price.	The students can - know the fluctuation in agricultural prices, - analyse the price stabilization, - understand the minimum support price.	12
IV	LAND REFORMS: Meaning- Nature, Objectives and Types- Implementation of Land Reforms- Abolition of intermediaries- Tenancy Reforms- Ceiling on Land Holdings- Bhoodan Movement.	The students can - learn about land reforms, - know the abolition of intermediaries, - analyse tenancy reforms.	12
V	RURAL INDEBTEDNESS AND RURAL CREDIT: Rural Indebtedness- Meaning – Causes and Evils- Rural Credit- Need for Credit- Classification of Credit- Sources of Rural Credit.	The students can - learn about the rural indebtedness, - understand the need for credits, - analyse the sources of rural credit.	12

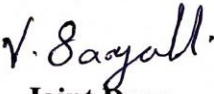
Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Agricultural Economy of India	Sankaran.S	2012	Progressive Corporation Pvt.Ltd,Bombay
2.	Agricultural Economics and Rural Development	Tyagi,B.P	2004	Jai Prakas Math and Co, Meerut

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Agricultural Economics	R.K.Lekhi & Joginder Singh	2017	Kalyani Publishes
2.	Principles of Agricultural Economics	S.Subba Reddy, R.Raguram, T.V.Nellakanta Sastri & L. BhavaniDevi	2004	Oxford & IBH Publishing Co. Pvt. Ltd, New Delhi
3.	Indian Economy	Dutt , Ruddar & K.P.M. Sundharam	2014	S.Chand & Co.Pvt.Ltd , New Delhi


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SEMESTER III

Programme: B.A	Subject: ECONOMICS
Course code:19UECC31	Course Title: Mathematical Methods
Category:Core-5	Credits:4

In this syllabus only 40 percentage of maths and remaining 60 percentage of theory.

Objectives:

- To understand the meaning and significance of elementary mathematical tools.
- To understand the concept of mathematical techniques.

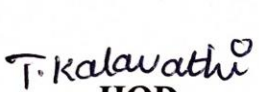
Units	Syllabus	Outcomes	Hours
I	NUMBER SYSTEM: The Real Number System – Types - Axioms - Rational Numbers –Irrational Numbers – Highest Common Factor – Least common multiple system – Real, Imaginary and Complex Numbers, Rational and Irrational Numbers – Graphs – Application of graphs in Economics.	The students can - simplify and evaluate the functions and equations of basic mathematics, - apply analytical and theoretical skills and solve mathematical problems, - gain a basic mathematical ideas.	18
II	SET THEORY: Meaning –Definition - Notation – Forms – Representation - Types – Set Operations- Venn Diagrams – Cartesian Products – Functional Relations and Function-Ordered Pairs.	The students can - know the set theory in systematic forms, - have a full-fledged knowledge about elementary mathematical tools, - demonstrate simplest kind of set operations.	18
III	FUNCTIONS AND EQUATIONS: Functions - Types– solving Functions –. Application of functions in Economics – Equations - Types – Solving Equations [polynomial, Linear, Quadratic, Simultaneous] – Application of Equations in Economics.	The students can - understand a link between formal mathematical theory and economic application, - induce the quantitative technique skill, - get the confidence to apply the theory to practical.	18
IV	ANALYTICAL GEOMETRY: Analytical Geometry – Distance between two points in a plane – Slope of a straight line. General Equations - Different types of equations –Point of Intersection of two lines – Perpendicular lines, Parallel lines – Application of straight lines in economics (Demand and supply, cost and output, Break – even analysis)	The students can - illustrate the forecasting techniques, - understand the application of straightline in economics, - have clear idea about application of break-even analysis in business.	18
V	COMMERCIAL ARITHMETIC: Percentage – Ratio Proportion - Types of Ratios- Types of proportion – Simple Interest – Compound Interest – Difference between compound interest and Simple Interest - Annuities – Depreciation (scrap value) – Discounts – Banker’s Discounts – True Discounts. -	The students can - analyze the ratio and proportion, - know the interest rates, - understand the discount, depreciation and illustrate the forecasting techniques.	18

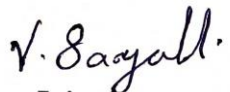
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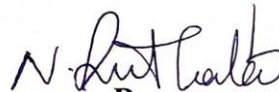
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1.	An Introduction to Business Mathematics	M.Wilson.	2007 (2)	Himalaya Publishing House, Delhi.
2.	An Introduction to Mathematical Methods	Dr.Bose	2007 (1)	Himalaya Publishing House, Mumbai

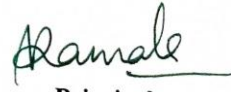
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Business Mathematics	Dr.J.RaviThenraj	2016 (1)	Balaji Publishing, Chennai.
2.	Mathematical Methods in Economics and Social Choice	Norman Schofield	2014 (2)	Washington University in Saind Louis, USA
3.	Mathematics for Economics and Finance	Martin Antony	2012 (1)	Cambridge University Press, UK


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SEMESTER III

Programme: B.A	Subject: ECONOMICS
Course code: 19UECA31	Course Title: International Economics
Category: Allied-3	Credits: 3

Objectives:

- To study the determinants of exchange rates and balance of payments
- To understand the analysis of foreign exchange transactions

Units	Syllabus	Outcomes	Hours
I	INTROUDUTION International Economics -Meaning – Definition - Scope -Differences between International trade and Internal trade – Merits and Demerits.	The students can • understand the importance of International trade. • evaluate the gains from International trade. • differentiate between inter regional and international trade.	12
II	FREE TRADE VS PROTECTION International trade - Need –Features -Free trade – Meaning – Definition- Advantages and disadvantages – Protection – Meaning –Definition - Advantages and disadvantages– Kinds of protection.	The students can • know the need and features of international trade. • find out the advantages and disadvantages of free trade and protection. • know the kinds and effects of protection.	12
III	DUMPING AND TERMS OF TRADE Dumping – Different forms – Anti dumping measures – Terms of trade – Meaning – Factors affecting terms of trade – Terms of trade and economic development tariff.	The students can • attain the knowledge about the cost of global market economic development. • Know about the terms of trade and economic development. • Know the effects of dumping.	12
IV	BALANCE OF TRADE & BALANCE OF PAYMENTS Meaning –BOT&BOP- Definition -Components of BOP- Types of Balance of trade and Balance of payment – Difference between of BOT and BOP- Structure of balance of payment – Kinds of disequilibrium of payment – Causes and remedial measures.	The students can • obtain the facts of exchange rates and balance of payments. • acquire skills that would help them to take rational decision in issues related with the international policy. • know the factors which affects the trade.	12
V	FOREIGN EXCHANGE AND EXCHANGE CONTROL Foreign exchange Meaning – Foreign exchange rate and its determination –Methods of Foreign Payment-Purchasing Power Parity Theory. Exchange control – Meaning – Objectives – Methods – Direct and indirect methods.	The students can • know about the foreign exchange transactions. • know the determination of foreign exchange rate and its related theories. • illustrate the exchange control of foreign exchange.	12

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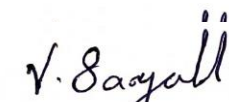
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	International Economics	Dr.Radha	2013 (4)	PrasannaPublisher, Chennai
2.	International Economics	M.L.Jhingan	2013 (6)	Virinda Publications (P) LTD, New Delhi

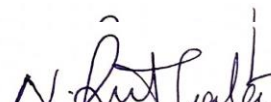
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S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Foreign Exchange	C.Jeevanandan	2004 (9)	Sultan Chand & Sons, New Delhi
2.	International Economics	Dr.S.Srinivasan	1998 (2)	PrasannaPublisher, Chennai
3.	International Economics	D.M.Mithani	2014 (17)	Himalaya Publishing House, Mumbai

Website Link: <https://www.bisuness-standard.com>


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011.

SEMESTER III

Programme: B.A	Subject: ECONOMICS
Course code:19UECS31	Course Title: Professional Techniques of Management
Category: Skill Based-1	Credits:4

Objectives:

- To educate the management Techniques.
- To develop the Leadership Qualities.

Units	Syllabus	Outcomes	Hours
I	INTRODUCTION: Meaning-Definition – Process - Nature, Scope and importance - Types of Management Techniques – Tools – Top 5 Management Techniques - Role of managers - Organization and the environmental factors.	The students can • understand the Organization and the environmental factors • integrate management principles into management practices • equip the tools of management techniques	12
II	PLANNING: Meaning – Nature and purpose – Objectives – Planning Function of Management – Reasons for planning in management – Examples - planning process in Management - Types of plans - Advantages and Limitations - Managerial Decision- steps in Managerial Decision making.	The students can • be a good decision makers • evaluate the global context for taking managerial actions of planning, organizing and controlling. • understand the purpose of planning.	12
III	ORGANIZATION: Meaning and definition - Management principles and importance -Examples of Organisation Management-Structure of Organization – forms – line, functional, line and staff, committee-Techniques of Leadership – Leadership skill and Management skill – Leadership and Management – Leadership styles and patterns – Qualities.	The students can • analyze the pattern of leadership skills. • describe the importance of organization. • acquire the skill about the structure of organization.	12
IV	MOTIVATION: Motivation – Nature – Motivation in Management – Management Motivation Techniques-Examples of great Managers Motivate their employees-Theories Carrot and stick Approaches, Maslow's Hierarchy of needs Theory -Mc.Gregory's 'X' Theory and 'Y' Theory- Herzberg's motivation Theory	The students can • analyze the motivating techniques. • evaluate the theories of motivation. • categories advantages and disadvantages of motivation.n	12
V	COMMUNICATION AND CO –ORDINATION: Communication –Effective Communication between managers an employee's-Good Communication Techniques- Channels of Communication - Barriers, Directing - Creativity and Innovations Co-ordinations -Need and importance of Co-ordinations - Techniques of Co-ordinations	The students can • get the best communication skill. • diagnose the communication and co-ordination. • know the techniques of co-ordination.	12

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Organizational Behaviour	L.M.Prasad	2007 (4)	Sulthan Chand & Sons, New Delhi.
2.	Management Theory and Practice	C.B.Gupta	2010 (14)	Sulthan Chand & Sons, New Delhi.

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	HumanResource Management	L.M.Prasad	2004 (2)	Sulthan Chand & Son’s, New Delhi.
2.	Personnel Management	P.C.Tripathi	2002 (16)	Sulthan Chand & Son’s, New Delhi.
3.	Principles and practice of Management	K.Natarajan and K.P.Ganesan	2020 (7)	Himalaya Publishing House Pvt. Ltd., Mumbai

Website Link: <https://www.economicdiscussion.net>


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SEMESTER III

Programme: B.A	Subject: ECONOMICS
Course code:19UNEC3A	Course Title: Essentials of Economics
Category:NME-1	Credits:2

Objectives:

- To learn about product pricing under different market conditions.
- To enhance the knowledge and productivity level and to Investment.

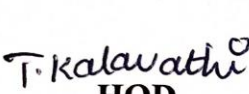
Units	Syllabus	Outcomes	Hours
I	INTRODUCTION TO ECONOMICS Meaning and Scope – Basic concepts – Wealth Definition – Welfare Definition – Scarcity Definition – Human wants – Meaning – Types – Characteristic – Goods – Utility – Value – Price – Income – Wealth – Welfare – Market – Cost – Revenue.	The students can • understand the concepts in economics. • get clear idea about the issues in economic problem. • Prepare themselves for the competitive examinations	6
II	CONSUMPTION Meaning of the terms – Consumer – Consumption – Utility maximization – Law of Diminishing Marginal Utility – Law of Equi-Marginal Utility – The concept of Consumer’s Surplus.	The students can • describe the utility function. • Estimate utility maximization • know about consumer surplus	6
III	PRODUCTION AND DISTRIBUTION Meaning of the terms – Producer – Production – Factor of production – Law of returns – Meaning and Features of the terms Rent, Wages, Interest and Profit.	The students can • obtain the skill implementation and factors of production. • understand the meaning of rent, wage, interest, profit. • Analyze the theories of factors in production	6
IV	PRODUCT PRICING Meaning and Features of Perfect competition – Imperfect competition – Monopoly – Price determination under – Perfect competition – Imperfect competition – monopoly.	The students can • understand the advanced level of the complex economic mechanism that characterize modern society. • get the knowledge about economic theory regarding the utilization and allocation of resources. • Illustrate how market for goods and services function and how income generated and distributed.	6
V	INVESTMENT Meaning of the term investment – Need and importance of investment – Investment opportunities in Shares, Bank deposits, Real estate’s – Small saving schemes – Insurance schemes – Investment in companies and investment in gold.	The students can • understand the need and significance of investment • obtain the methods of investment • get the knowledge about companies and gold investment • know the opportunities of shares and bank deposits	6

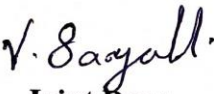
Text Books:

S.No	Title of the Books	Author/s	Year (Edn)	Publisher/s
1.	Microeconomic Theory	M.L.Jhingan.	2013 (14)	Virinda Publications, New Delhi.
2.	An Introduction to Micro Economics	Dr.D.Bose&Marimuthu	2016 (2)	Himalaya Publishing House, Mumbai.

Reference Books:

S.No	Title of the Books	Author/s	Year (Edn)	Publisher/s
1.	Advanced Economic Theory	H.L.Ahuja	2006 (14)	S.Chand Publishing, New Delhi.
2.	Advanced Economic Theory	M.L.Jhingan	2010 (3)	Virinda Publications, New Delhi.
3.	Micro Economics	M.John Kennedy	2001 (2)	Himalaya Publishing House, Mumbai.


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SEMESTER III

Programme: B.A	Subject: ECONOMICS
Course code: 19UNEC3B	Course Title: Economics Insurance
Category: NME -2	Credits:2

Objective:

- To provide basic knowledge of insurance.
- To know the essentials of insurance.

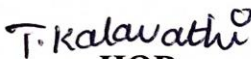
Units	Syllabus	Outcomes	Hours
I	INTROUDUTION Definition-Origin and importance-Principles of Insurance- Insurance contract-Insurable Interest-Reinsurance- Double Insurance.	The students can - understand the definition and origin, importance of insurance. - Know about the impact of insurance contract. - Find out the importance of insurable interest.	12
II	LIFE INSURANCE Life insurance-Definition-Uses of Life Insurance-Kinds of Policies- General principles of Life Insurance-Premium determination-LIC Functions- Achievements-Problems-Procedure of settlements of a Life Insurance policy.	The students can - Analyse the current insurance coverage and potential needs. - Choose an insurance. - know about the specialized insurance policy.	12
III	GENERAL INSURANCE Types of general insurance-Difference between General Insurance and Life Insurance. FIRE INSURANCE Essentials of Fire insurance-Contract-Moral and physical hazards-Scope of Fire insurance.	The students can - Know about the general insurance and life insurance. - Understand the essentials of fire insurance. - Analyse the benefits of fire insurance.	12
IV	MOTOR INSURANCE Need for Motor Insurance-Procedure of Motor Insurance- Conditions of Motor Vehicle Policy- Motor Insurance Claims.	The students can - Know about the need for motor insurance. - Realized the procedure of motor insurance. - Analyse the importance of motor vehicles policy claims.	12
V	ACCIDENT INSURANCE Features of personal Accident Insurance-Procedure of taking policy-Kinds of Personal Accidental Policies- Conditions-Features-Claim settlement HEALTH INSURANCE Definitions and Features of health insurance-Types of Health insurance	The students can - know the characteristics of personal Accident insurance. - understand the process of accident insurance. - scrutinize the features and types of health insurance.	12

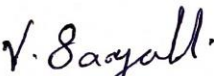
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Insurance Principles and Practice	S.Devairakkam	2001 (2)	D.S.R. PUBLICATIONS, Tirunelveli
2.	Insurance Principles and Practice	M.N. Mishra	2007 (17)	S. Chand Publication, New Delhi

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Insurance Law and Policy	Tom Baker	2008 (2)	Aspen Publishers, Newyork
2.	Insurance Handbook for the medical office	Marilyn.T.Fordney	2017 (14)	Elsevier Publications, Netherland


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SEMESTER IV

Programme: B.A	Subject: ECONOMICS
Course code:19UECC41	Course Title: Mathematical Economics
Category:Core-6	Credits:4

In this syllabus only 40 percentage of maths and remaining 60 percentage of theory.

Objectives:

- To enable students to apply mathematics to understand economic theory.
- To use appropriate mathematical concepts to solve economic problems.

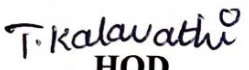
Units	Syllabus	Outcomes	Hours
I	DIFFERENTIATION AND ITS APPLICATION Meaning – Rules of Differentiation – Rule of quotient – Inverse function – Exponential function – Rules of derivatives – Higher order derivative – Maxima and Minima –Application of Differentiation in Economics.	The Students can • Understand the idea of differentiation (from first principles) • Understand and work with derivatives as rates of change in mathematical methods. • Use knowledge of the second derivative to distinguish between maxima and minima. • Maximize utility and minimize cost	12
II	PARTIAL DERIVATIVES AND ITS APPLICATION Meaning – Rules - Euler’s Theorem - Partial derivatives of a function of three variables – Second order and higher Partial derivatives - Revenue function and Demand Functions – Application of Partial derivatives in Economics	The Students can • know the rules for calculating derivatives, uses and application in total cost, marginal cost, average cost and revenue. • know the applications of Euler’s theorem in factors of production • analyze the application of partial derivatives in economics	12
III	INTEGRATION AND ITS APPLICATION: Meaning- Definition – Types of Integrals – Rules of integration – Definite Integrals – Application of Integrals in economics – Consumer’s Surplus – Producer’s Surplus.	The Students can • be familiar with the rules of integration • use the integration by parts formula for definite integrals • recognize when to use integration by parts • Use the integration by parts formula to solve integration problems.	12
IV	MATRICES AND DETERMINANTS: Meaning – Notations - Basic concepts - Order of a Matrix – Types of Matrices – Matrix operations – Integration by Substitution - Determinants – properties of Determinants – Inverse of a Matrix – Solving the Equations (Cramer’s rule).	The Students can • Perform basic matrix operations, including addition and subtraction, scalar multiplication • Describe how the determinant of a matrix and its inverse are related • Compute the determinant of two-by-two and three –by-three matrix	12
V	APPLICATIONS OF MATRICES IN INPUT – OUTPUT ANALYSIS AND LINEAR PROGRAMMING: Input – Output Analysis – Meaning – Basic Concepts – assumptions – Applications of Matrices in two and three sector economy – Linear programming – Meaning – Basic concepts and notations – Graphical Solutions.	The Students can • Formulate a given simplified description of a suitable realworld problem as a linear programming model in general, standard forms. • have a knowledge of basic concept of linear programming • analyze the application in input-output analysis using graph technique.	12

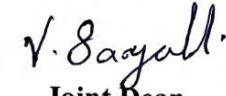
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1.	An Introduction to Mathematical Economics	Dr.Bose	2007 (1)	Himalaya Publishing House, Mumbai.
2.	An Introduction to Business Mathematics	Wison.M	2007 (2)	Himalaya Publishing House, Mumbai.

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SEMESTER IV

Programme: B.A	Subject: ECONOMICS
Course code:19UECA41	Course Title: International Economic Theories and Policies
Category:Allied-4	Credits:3

Objectives:

- To study the theories of international trade in goods and services
- To study the recent trend in India’s foreign trade

Units	Syllabus	Outcomes	Hours
I	THEORIES OF INTERNATIONAL TRADE: Meaning and definition of International trade – Adam Smith Classical Theory – David Ricardo’s Comparative Cost Theory – Modern Theory.	The students can • gain the knowledge about the classical theory of international trade. • study the comparative cost theory of international trade. • understand the theories of international trade.	12
II	STATE TRADING AND INTERNATIONAL TRADE AGREEMENT: Meaning – Forms of State trading- Objectives – Merits and Demerits - State trading Corporation of India -International Trade Agreements – Bilateral – Multilateral – General Agreements – GATT and WTO.	The students can • be familiar with the forms of state trading. • evaluate the merits and demerits of trading cooperation. • understand the concept of international trade agreements.	12
III	INTERNATIONAL FINANCE INSTITUTION S: IMF – Objectives – Functions – Organizations and Structures – The World Bank (IBRD) Organization and Structure – Objectives – Functions – IBRD and India - Affiliates of World bank, IFC, IDA and ADB, G-20, Bricks, SAARC.	The students can • demonstrate the organization and structures of financial institutions. • know the functions of international level banks. • obtain the knowledge of affiliates of world bank.	12
IV	RECENT TRENDS IN INDIA’S FOREIGN TRADE: Meaning and Definition of Foreign Trade - Features of foreign trade – Importance of India’s Foreign trade - Volume – Composition – Direction of foreign trade.	The students can • know the features of foreign trade. • understand the significance of trade. • know the various positions of foreign trade.	12
V	FOREIGN TRADE POLICY OF INDIA: Main features of foreign trade policy – Phases of foreign trade policy – New trade policy 2000 – Import restriction- Export Promotion.	The students can • know the restrictions of imports. • obtain the full-fledged knowledge of the India’s foreign trade policy. • find, analyse, and evaluate different trade policies of various nations.	12

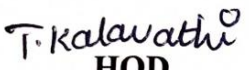
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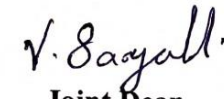
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SEMESTER IV

Programme: B.A	Subject: ECONOMICS
Course code: 19UECS41	Course Title: Entrepreneurial Enhancement
Category: Skilled Based-2	Credits:4

Objectives

- To Understand the role of women entrepreneurs
- To motivate to Start enterprises by using institutional supports

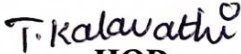
Units	Syllabus	Outcomes	Hours
I	ENTREPRENEURSHIP: Definition - Concept – Types – According to the type of Business, According to the use of technology, According to Motivation, According to Growth, According to the stages of development – Characteristics of an entrepreneur – Qualities – Distinction between an entrepreneur and a Manager – Functions of entrepreneurs-Role of entrepreneur in Digital era – Kao’s conceptual model of entrepreneurs – Growth of entrepreneurship in India.	The students can • understand the types of business and the uses of technology. • find out the difference between the entrepreneur and a manager. • understand Kao’s conceptual model of entrepreneurs.	12
II	ENTREPRENEURIAL MOTIVATION: Meaning and characteristics – Importance - Objectives - Essentials of a successful motivational System-Problems or hurdles in motivation - The motivating factors – David McClelland’s achievement motivation theory – Maslow’s Need Hierarchy Theory - Search and source of business idea – Idea processing and selection-Role of Women Entrepreneurs - Types-Pecutial Problems – Measures to state Problems.	The students can • understand the importance of entrepreneurial motivation. • know about the David McClelland’s achievement motivation theory. • understand the types of problems which was faced by women entrepreneurs.	12
III	PROJECT IDENTIFICATION AND CLASSIFICATION: Meaning of project –Selection of project- Project classification –Quantifiable and non-quantifiable Projects-Sectoral Projects- Techno economic Projects - Financial institutions classification-Project identification – Role of project Identification-Project Objectives - Desk research and techno – Economics survey technique – Internal and external constraints – Project life cycle-The Pre-Investment Phase-The Construction Phase-The Normalization Phase.	The students can • know the role of project identification. • find out the internal and external constraints. • understand the classification of financial institutions.	12
IV	PROMOTING AND STARTING AN INDUSTRIAL UNIT: Nature and types of promoters – Step to start a small industry – Selection of the product-Selection of form of ownership- Selection of a site-Designing of Capital Structure-Acquisition of manufacturing Know-how-Preparation of a project report- Presentation of Project report guidelines-Technical Characteristics of the product-Procedures and Formalities For Registration of small scale units - Relationship between small and Large units – Role of Small enterprises and Economics Development - Incentives and subsidies available – Women Entrepreneurship – Role of Women Entrepreneur in Indian economy with reference to Self-employment development – Incentives and subsidies for Women Entrepreneur.	The students can • understand the role of small enterprises. • know about the selection of industrial development in Tamil Nadu. • be familiar with the types of promoters in industrial sectors.	12
V	INSTITUTIONS FOR ENTREPRENEURIAL DEVELOPMENT: District Industries Centre – State Small Industries Corporation – Small Industries Development Corporation (SIDCO) in Tamil Nadu – National Small Industries Corporation – Industrial and technical consultancy. – National Alliance of Young Entrepreneurship – Commercial Banks – New Entrepreneurial Development Agency – Directorate of Industries – Indian Investment Centre-Khadi and village Industries Commission-State Industries Promotion Corporation of Tamil Nadu Ltd (SIPCOT)-Tamil Nadu Industrial investment Corporation Ltd (TIIC)- Objectives and features only	The students can • understand the growth of entrepreneurship in India. • Know the development of small industries in Tamil Nadu. • get clear idea about the objectives and features of Tamil Nadu Industrial Investment Corporation Ltd.	12

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Entrepreneurial Development	Dr.S.S.Khanka	2012 (4)	S.Chand& Company. New Delhi.
2.	Entrepreneurship Development	E.Gordon. K.Natarajan	2009 (5)	Himalaya Publications, New Delhi.

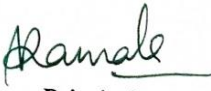
Reference Books:

S.No	Title of the Book	Author/ss	Year (Edn)	Publisher/s
1.	EntrepreneurshipDevelopment	King’s	2002 (1)	King’s Books. Delhi.
2.	Entrepreneurial Development	C.B. Gupta &N.P.Srinivasan	2008 (8)	Sultan Chand & Sons, New Delhi
3.	Entrepreneurship Development	Jose Paul&N.Ajith Kumar	1997 (3)	Himalaya Publications, New Delhi.


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Ariyakulam, Thoothukudi NH, Maharaja Nagar Post, Tirunelveli- 627 011.

SEMESTER IV

Programme: B.A	Subject: ECONOMICS
Course code:19UNEC4A	Course Title: Issues in Indian Economy
Category:NME-2	Credits:2

Objectives:

- To study the Characteristics of Indian Economy.
- To understand the causes and consequences of Poverty.

Units	Syllabus	Outcomes	Hours
I	CHARACTERISTICS OF INDIAN ECONOMY: Economic System-Features of Indian Economy – Mixed Economy – Dualistic Economy- Suggestions for economic development.	The Students can • understand the characteristics of Indian Economy, • know the features of Indian Economy, • analyze the Economic development.	6
II	NATIONAL INCOME: Meaning and Components of national income – Circular flow of income in two sector economy – Measurement of national income – Problems of measurement of national income in India	The Students can • evaluate the measurement of National Income, • get the knowledge about the disputes of National Income, • know the flow of income.	6
III	DEMOGRAPHIC ISSUES: Demographic profile of India – Causes and Consequences of over population in India – Population policy in India – Malthusian theory of population.	The Students can • analyze the causes and consequences of population issues, • demonstrate the population policy in India, • diagnose the theory of Malthus’s population.	6
IV	STRUCTURAL AND DEVELOPMENT ISSUES: Poverty: Poverty in India – Causes and Consequences of poverty – Unemployment: Types of Unemployment – Cause and Consequences of Unemployment in India- Relationship between Central and State Government.	The Students can • be familiar with the relationship between State and Central Government, • demonstrate the unemployment policy, • understand the relationship between central and state government.	6
V	AGRICULTURAL AND INDUSTRIAL SECTOR New Agricultural Strategy and Green Revolution – Technological changes – HYV seeds – Agricultural Finance – Importance of Industrialization – Problems – Role of Contribution problems of Industrialization in economic development – Mode of Transportation – Banking services in India.	The Students can • get clear idea about the agricultural sector, • understand the importance and problems of industrialization, • know about the mode of transportation.	6

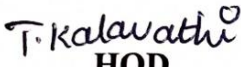
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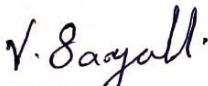
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Indian Economy	Dr.Radha	2014 (2)	Prasanna Publishers, Chennai
2.	Indian Economy	A.N.Agrawal	2003 (29)	WishwaPrakasan, New Delhi.

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	The Indian Economy Environment and Policy	Ishwar C. Dhingra	2010 (24)	S. Chand & Co., New Delhi
2.	Indian Economy	Gaurav, D. and Ashwani, M	2014 (69)	S. Chand & Co, New Delhi
3.	Indian Economy	S.K.Misra&V.K.Puri	1997 (15)	Himalaya Publishing House, New Delhi.

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SEMESTER III

Programme: B.A	Subject: ECONOMICS
Course code: 19UNEC4B	Course Title: <u>Economics of Salesmanship</u>
Category: NME-2	Credits:2

Objective:

- To provide basic knowledge of salesman in marketing.
- To develop salesmanship skills in students.

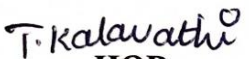
Units	Detailed Syllabus	Outcomes	Hours
I	INTROUDUTION Salesmanship Definition-Is salesmanship a sciencean art or a profession ? Creative Salesmanship and Competitive Salesmanship .Sales organization – organisation of sales department.	The students can • understand the salesmanship profession wheather its art or science. • findout the difference between salesmanship and competitive salesmanship. • Know the importance of sales organization	12
II	SALES MANAGER Duties of Sales Manager-Sales Supervision-Salesman’s Report Selection and Training of Salesmen.	The students can • Analyse the duties of sales manager. • Findout the importance of sales supervision and sales report. • Analyse the procedure of salesmen selection and training.	12
III	SALES PERSONALITY Sales territories- Sales Quotas-Sales personality, Important Personality Traits.	The students can • Findout the sales territories. • Analyse the sales quotas. • Know the importance of sales personality.	12
IV	PRODUCT KNOWLEDGE Knowledge of goods-Methods of acguiring product knowledge- Important Buying motives.	The students can • Recognize the knowledge of goods. • Understand the approach of acquiring product knowledge. • Require an important buying motives.	12
V	DEMONSTRATION Effective presentation and demonstration-Overcoming and closing the sales.	The students can • Comprehend the effective presentation of salesmanship. • Know the techniques of overcoming the objections. • Understand the methods of closing the sales.	12

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Salesmanship and Publicity	Rustom S Daver, Sobrab R Daver, Nusli R Daver	2004 (16)	Vikas Publishing House Pvt. Ltd, New Delhi
2.	Advertising and personal selling	C.B.Gupta	2010 (4)	Sultan Chand Publication, New Delhi

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Economics of Salesmanship	Dr. S. Jeyalakshmi	2013 (1)	G. Aravind Publishers, Kurangani
2.	Marketing Management	R.S.N. Pillai, Bagavathi, S. Kala	2012 (1)	Sultan Chand Publication, New Delhi
3.	Advertising and sales promotion	Debraj Datta, Mahua Datta	2011 (1)	Vrinda Publication Pvt.Ltd, New Delhi


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SEMESTER V

Programme: B.A	Subject: ECONOMICS
Course code: 19UECC51	Course Title : Basics of Macro Economics
Category:Core-7	Credits:5

Objectives

- To Study the significance and limitations of Macro Economics Analysis
- To study the concept of National Income and multiplier efforts

nits	Syllabus	Outcomes	Hours
I	INTRODUCTION Meaning of Macro Economics – Differencebetween Macro and Micro Economics – Importance and Limitations -Approaches to Economic analysis -Circular flow of income – Keynes Two sector, Three sector, Four Sector models.	The students can - differentiate Micro and Macro Economics. - know the significance of Macro Economic analysis. - find out the limitations of Macro Economic analysis.	18
II	NATIONAL INCOME National Income Concepts – Meaning and definition – Components – Gross Domestic Product (GDP) Gross National Product (GNP), Net National Product (NNP), Personal Income, Disposable Income and Percapita Income – Measurement of National Income – Production method, Income Method and Expenditure Method – Problems of measurement of National Income – National Income Accounting.	The students can - acquire the knowledge of the National Income Accounting. - know about the importance of NationalIncome analysis. - dispute the measurement of National Income.	18
III	THEORY OF EMPLOYMENT Meaning of full employment – Types of unemployment, Seasonal, Frictional, Technological, Structural, Voluntary and Involuntary, Cyclical and Disguised unemployment –Classical Theory of Employment, Keynesian Theory of Employment–Comparisonof Classical and Keynesian View: Say’s Law of Market – Pigou’s view regarding involuntary unemployment	The students can - understand the theories of Employment and the types of unemployment. - illustrate the determinants of various theories of unemployment. - know the relationship between market condition in classical and modern economic condition.	18
IV	CONSUMPTION FUNCTION Meaning –Determinants - Relationship between consumption and income – Relationship between APC and MPC - Keynes’s Psychological law of Consumption	The students can - gain the knowledge of Keyne’s psychological law of consumption. - illustrate the determinants of consumption function. - know the relationship between consumption & income.	18
V	MULTIPLIER AND ACCELERATOR Multiplier – Meaning - Relationship with marginal propensity to consume – Working of the multiplier – Importance. Acceleration – Meaning – Principle – Assumptions – Working of the accelerator – Importance – Limitations	The students can - define the term Multiplier and Accelerator. - Analyze the working condition and importance of multiplier and accelerator. - Diagnose the principles of accelerator and multiplier.	18

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Macro Economic Theory	M.L. Jhingan	2013 (6)	Vrinda Publications (P)Ltd, New Delhi
2.	Macro Economic Theory	S. Sankaran	2018 (7)	MargamPublications,Chennai.

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Macro Economic Theory and Policy	H.L.Ahuja	2010 (16)	S.Chand & Company LTD, Chennai.
2.	Macro Economics	Charles I.Jones.	2010 (1)	W.W.Norton& Company, London
3.	Macro Economic Theory	M.C.Vaish	2010 (14)	Vikas Publishing House Pvt.Ltd, New Delhi


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SEMESTER V

Programme: B.A	Subject: ECONOMICS
Course code:19UECC52	Course Title: Money and Banking
Category:Core-8	Credits:5

Objectives:

- To Study the functions & kinds of Money
- To learn the Importance of Commercial, Central, and Modern Banking.

Units	Syllabus	Outcomes	Hours
I	EVOLUTION OF MONEY: Barter system – Meaning - Defects - Evolution of money - Definition– Functions - Kinds - Qualities of good money - Evils. Monetary Standard: Meaning - Types- Monometallism – Bimetallism- Gresham's Law - Paper currency standard - Merits & Demerits of the Paper currency standard - Principles of Note issue.	The students can • know the defects of barter system and the evolution of money, • understand the functions and different forms of money, • gain the knowledge of merits and demerits of paper currency standard and Gresham’s law.	15
II	VALUE OF MONEY CENTRAL AND RESERVE BANKING: Meaning - Measurement of changes in the value of money - Theories - Quantity Theory of Money - Fisher's cash - Transactions Approach -The Cambridge School's cash Balance Approach - Saving and Investment Theory. Meaning and Definition of Central Bank – Functions-Role of Central Bank in Developed Countries and Developing Countries- Meaning-Definition of RBI-Functions-Role of economic development –Difference between Central Bank and Commercial bank.	The students can • get knowledge about the savings and investment of the money, • recognize the difference between central bank and RBI, • understand the functions and the role of central bank in developing countries.	15
III	COMMERCIAL BANKING: Commercial bank –Definition – Functions - Types -The Balance sheet of Commercial Bank - Credit Creations- Nationalizing commercial bank in India - Role of commercial bank in India– Functions - Credit control - Objectives – Methods.	The students can • get the knowledge of the loan and advances, • understand the functions and the role of commercial banks in India, • find out the role of banker and customer services.	15
IV	AGRICULTURAL BANKING: Primary Agricultural Credit Societies (PACs) – Central Cooperative Banks (CCBs) – State Cooperative Banks (SCBs) – Land Development Banks (LDBs) – Strengthening the Cooperative Structure. Rural Banks – Regional Rural Banks (RRBs) – National Bank for Agriculture and Rural Development (NABARD).	The students can • know about the cooperative banks in India, • understand the strengthening the cooperative structure, • get the knowledge about the Regional Rural bank and NABARD.	15
V	MODERN BANKING: Modern Banking -Introduction -E-Banking - Online transfer of funds- Core Banking - Methods of transferring funds- Role of Modern banking in Developing countries – Problems of modern banking.	The students can • demonstrate the concept of E-banking, • get the knowledge about the role of modern banking in developing countries, • evaluate the Modern Banking system and the methods of fund transferring.	15

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Monetary Economics	R.Cauvery&N.Kiruparani	2012 (3)	S.Chand Publications, Delhi
2.	Monetary Economics	M.L.Jhingan	2011 (7)	Virinda Publications (P) Ltd, New Delhi

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Banking Theory Law & Practice	Dr.S.Gurusamy	2010 (1)	Tata McGraw Hill Education Ptd., New Delhi
2.	Money banking and International Trade and Public Finance	D.M.Mithani	2002 (6)	Himalaya Publishing, New Delhi
3.	Banking Theory Law & Practice	K.P.M.Sundharam.	2003 (3)	Sultan Chand & Sons, New Delhi.

Website Link:<https://www.nabard.org>


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SEMESTER V

Programme: B.A	Subject: ECONOMICS
Course code: 19UECC53	Course Title: Indian Economy
Category: Core-9	Credits:5

Objectives:

- To study the causes of poverty and unemployment
- To compare the role of agriculture and industry in Indian Economy

Units	Syllabus	Outcomes	Hours
I	STRUCTURE AND ORGANISATION OF INDIAN ECONOMY: Indian Economy Pre and Post before Independence – Characteristics of Indian Economy –Factors determining Economic Development-Sustainable Economic Development– Problems of Indian Economy – Poverty and Unemployment – Causes and Remedial Measures.	The students can • dispute the characteristics of Indian Economy as a developing economy, • analyse the factors of economic development, • dispute the causes and remedial measures of poverty and unemployment in Indianeconomy.	15 3
II	DEMOGRAPHIC FEATURES OF INDIA: Demographic profile of India-Causes and Consequences of over population in India - Population Policy in India–National Family Welfare(planning)Programme-Population 2011-India & Tamil Nadu -Population Control in India – Progress of Human Development–Migration- Brain Drain. Health: Meaning – Health and Development-Components and determinants - Health indicators – Life expectancy rate – Infant Mortality Rate – Maternal - Mortality Rate – Sex Ratio-Role of Women in Health.	The students can • describe the demographic trends in India, • get the knowledge on the causes and consequences of population in India, • secure the knowledge of population control in India.	15
III	HEALTH SERVICES: Allocation of Resources-Economic Regulation in Health-Health Policy-Demand for health services – Cost and Benefits of health services (Direct & indirect cost) – Health model andhealth – Role of physician.Health Financing in India-Sources of finance –Health Finance Profile 2017- Public, Private Participation (PPP) – Public expenditure on health – Problems in financing health services- Role of NGO’s Healthcare sector.	The students can • have the depth knowledge about government and health services, • know the cost and benefit of healthservices, • illustrate the sources of PPP.	15
IV	GOVERNMENT POLICIES AND NEW SCHEMES: Pradhan Mantri Jan Dhan Yojana – Make in India – Pradhan Mantri Sukanya Samrielhi – Yojana (PMSSY) – Pradhan mantra Mudra Yojana – Pradhan Mandtri Jeevan Jyoti Bima Yojana (PMJJBY) – Pradhan mantrisurakshaBima Yojana – Atal Pension Yojana – Kisan Vikas Patra – Gold Monetisation schemes- Start-up India stand-up India – Stand-up India Loan Scheme – BHIM App – Shyama Prasad Mukherji Rurban Mission (SPMRM) – SetuBharatan Project – Pradhan Mantri Ujjwala Yojana.	The students can • understand the government policies and schemes, • find out the need and important activity for economic growth, • know the new upliftment of Women’s welfare.	15
V	PLANNING AND ECONOMIC RETURNS: Meaning-Objectives-Need and Importance of Planning exercises in India – Five-year Plans – Objectives and Achievements – NITI Aayog – Economic returns in India. – Black Money –Meaning and Definition of Black Money–Control of Black money- Regional Imbalance-Policy measures to remove regional disparities	The students can • evaluate the achievements of planning in India, • analyze the various aspects of Indian economy, • develop a perspective on the different problems and approaches to economic planning and development in India.	15

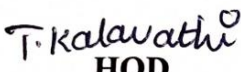
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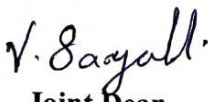
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1.	Indian Economy	Dr.Radha	2014 (2)	Prasanna Publishers, Chennai
2.	Indian Economy	A.N.Agrawal	2003 (29)	WishwaPrakasan, New Delhi.

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S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	The Indian Economy Environment and Policy	Ishwar C. Dhingra	2010 (24)	S. Chand & Co., New Delhi.
2.	Indian Economy	Gaurav, D. and Ashwani, M.,	2015 (70)	S. Chand & Co., New Delhi.
3.	Indian Economy	S.K.Misra&V.K.Puri	1997 (15)	Himalaya Publishing House, New Delhi.

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SEMESTER V

Programme: B.A	Subject: ECONOMICS
Course code:19UECC54	Course Title: Industrial Economics
Category: Core-10	Credits:5

Objectives:

- To study the industrial development with foreign collaboration
- To study the sources and importance of industrial finance and government policy

Units	Syllabus	Outcomes	Hours
I	BASIC CONCEPTS OF INDUSTRIAL ECONOMICS INDUSTRIALIZATION: Meaning – Need-Importance- Factors affecting industrialization – Location of industries – Factors influencing industrial – Concepts of optimum firm.	The Students can • find out the need and importance of industry • describe the factors which affect the industry • get clear idea on manufacturing of micro Industry	15
II	INDUSTRIAL STRUCTURES: Meaning –Standard Formsand Concept (Micro, small and medium enterprises) MSMEs – New schemes of Startup– Industrial structures and groups – Public and private, large small industries – Service and manufacturing enterprises.	The Students can • gain full-fledged knowledge about the public and private Industry • know the services of enterprises • know the sources of enterprises in modern economic development.	15
III	INDUSTRIAL FINANCE: Meaning - Scope - Importance – Sources –Need for finance-Contribution Various Sources of Finance in Indian situation. Private finance – public finance –Foreign capital, need for foreign capital – Government policy towards foreign capital-Market Structure and Innovation in Industrial Sector.	The Students can • know the sources of industrial finance • recognize the importance of Government policy • find out the need for foreign capital	15
IV	INDUSTRIAL GROWTH IN INDIA: Industrial growth in India – Industrial Policy in India – Small Scale Industries – Foreign collaboration in technology – Industrial development in India.	The Students can • understand the industrial development with foreign collaboration • identify and compare different Industrial structures, with their prices and output implications. • use course materials to judge the behavior of firms in today economy.	15
V	INDUSTRIAL LABOUR: Meaning – Characteristics –Problems and suggestions of Industrial Labour-Trade union – Social & Security – Measures in India. Industrial labour Productivity in India.	The Students can • understand the characteristics oflabour • analyze the problems of trade union • obtain the knowledge of the security measures in India	15

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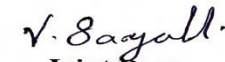
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Industrial Economics	R.R.Barthwal	2018 (3)	New Age International Publishing House, New Delhi
2.	Indian Economy	Gaurav. D and Ashwani. M	2015 (70)	S. Chand & Co. New Delhi

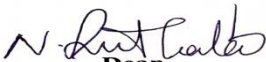
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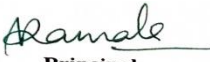
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Industrial Economics and Principles of management	Yogendra Singh & Mammta Pandey	2008 (1)	AITB & Publishers, Kolkata
2.	Industrial Economics	A.K.Sharma	2006 (2)	AnMol Publications, New Delhi
3.	Industrial Relations	AmitAgarwal	2011 (1)	Pacific publications, New Delhi

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SEMESTER V

Programme: B.A	Subject: ECONOMICS
Course code: 19UECCPE51	Course Title: Economics for Competitive Examinations
Category : Common	Credits: 8

Objectives:

- To assess the trend of Indian economy in various sectors
- To familiar with current affairs of Indian economy for the preparation of competitive examinations.

Units	Syllabus	Outcomes	Hours
I	PLANNING OF INDIAN ECONOMY: Objectives of Five-Year Plans of India – NITI Aayog in India – Goods and Service Tax (GST) – Summary of current Year Budget	The students can • Understand the financial objectives of different plans and NITI Aayog, • Know the features of GST, • Familiar with the budget reports.	15
II	STATUS OF AGRICULTURE: Causes for low productivity in Indian agriculture – Agricultural Policies – Cropping pattern –Agricultural Pricing – Schemes for farmers.	The Students can • Analyse the status of Indian agriculture, • Understand the agricultural policies, • Aware about the schemes for farmers.	15
III	TREND OF INDUSTRIAL SECTOR: Industrial Policies – Small Scale and Large Scale Industries – Major Industrial sectors of India – Institutional support for industrial sectors.	The students can • Understand the industrial policies, • Classify the major industrial sectors in India, • Mindful about the schemes for the development of industrial sector.	15
IV	INTERNAL AND EXTERNAL TRADE: Balance of Trade – Balance of Payments – EXIM – Subsidies – Foreign Trade Policy – India’s Trend in International Trade.	The students can • Differentiate balance of trade and balance of payments, • Study the foreign trade policies of India, • Know the trend of international trade of India.	15
V	ECONOMIC REFORMS AND SCHEMES: Economic Reforms – Indian Economy in comparison to Major Economies of the World – Origin and Objectives of Central Government Schemes: Digital India Programme, DeenDayalUpadhyayaAntyodayaYojana, Mahatma Gandhi National Rural Employment Guarantee Act, Ayushman Bharat Yojana.	The students can • Study the economic reforms made for the development of Indian economy, • Compare Indian economy with other economy, • Familiar with the objectives of various schemes announce by Central Government.	15

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Public Finance	Dr.R.Cauvery	2010 (1)	S.Chand&Company, New Delhi.
2.	Money, Banking, International Trade and Public Finance	M.L.Jhingan	2002 (6)	Vrinda Publication, New Delhi.

Reference Books:

S.No	Title of the Book	Author/s	Year Edn)	Publisher/s
1.	The Economics of Development and Planning	M.L.Jhingan	2002 (35)	VrindaPublications, New Delhi.
2.	Indian Economy	RuddarDutt&K.P.M. Sundaram	2014 (69)	S. Chand & Co., New Delhi.
3.	Macro Economic Theory	M.L. Jhingan	2013 (6)	Vrinda Publications, New Delhi.

Website Link: <https://www.india.gov.in>


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Sri Sarada College for Women, Tirunelveli 627011(An Autonomous Institution)
SEMESTER VI

Programme: B.A	Subject: ECONOMICS
Course code: 19UECCEP51	Course Title: Project
Category : Common	Credits: 8

Objectives:

- To have hands on training in the fields of economic sectors.
- To train presentation skill in the open forum.

Project Guidelines

- (For Certificate, Diploma, Advanced Diploma, UG, PG, and M.Phil., programmes)
- Duration of the project work shall be for a period of one semester
- Project work shall be carried out under the supervision of a faculty member of the department concerned or from allied department, if the work is of interdisciplinary in nature or with internal or external expert beyond the department as co-supervisor.
- The supervisor allocation shall be made by lot by the end of 4 semester in UG, by the end of 2ndsemester in PG (April 1st week) and for M.Phil., 15 days after joining the programme. The allocation details may be sent to Autonomous cell by 10th April for UG & PG and for M.Phil., 30 days after joining the programme.
- After allocation, the respective supervisors have to conduct orientation/counsel meeting with the assigned candidates about the project with P3 agenda (Participation, Presentation, and Publication) towards career prosperity. Subject Knowledge towards Pure and Applied part may be highlighted for doing the project.
- The HoD shall review the coverage of different fields of the subject amongst the candidates and to see that the students should not focus on particular fields alone.
- The candidates have to study/refer journals/previous works/focus on the proposed topic in the summer vacation and 5-10 titles of proposed project on respective subject (discipline) or on allied subject (interdisciplinary) with economic/scientific/social/local/state/national/global issues may be submitted to the guide by May end.
- The supervisor shall guide the candidates on their choice after having reviewed proposed topics, the mindset and work culture, provided the work is of innovative in nature, affordable and with future prospective. If not satisfied with the proposed topic/due to lack of infrastructure/beyond scope and practicality, supervisor herself shall suggest the field/topic for work. Hard copy of proposed title with objectives in the prescribed format to be submitted to CoE’s Office through Dean, Autonomous in the last week of June
- Parent’s undertaking/willingness may be obtained in writing by inviting the parents for department level meeting after explaining its importance, guidelines, safety precautions related to outdoor project commitment setc.
- Project period – June to September. Last date for the submission of dissertation is 15th October
- Project Progress Review has to be conducted in 5th July, 5th August and 5th September. Report Card for individual candidates shall be maintained at the department for audit at any time. (Performa)
- If a candidate fails to submit the dissertation on or before the specified date, she may submit the same on or before 15th November by paying prescribed late fee.
- The evaluation of dissertation will be as per the University/Autonomous norms The assessment of Project component during the Course and in the End-semester examinations shall be carried out as follows:

CIA (Max: 25 Marks)				End – Semester Examination(Max.: 75 marks)				
Marks for Reviews (Average of the best two of the three compulsory Reviews) (Max.: 25 marks)				Marks for Thesis Evaluation (Max.: 25 marks)		Marks for Viva-Voce Exam. (wit the Deptl.Faculty Member / Course students) (Max.: 50 marks)		Total (Max.)
Review I (Max.)	Review I I (Max.)	Review III (Max.)	Average of the best two (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	
25	25	25	25*	12.5	12.5	25	25	75*

- * The marks secured may be rounded off to its nearest integer.
- PG and M.Phil., students should carry out the project individually. UG students may undertake group projects with a maximum of three students in a group. The group may be of interdisciplinary nature combining students from two to three departments with the concern of the respective guides. An undertaking, in this regard, has to be submitted by the group of students with the endorsement by the guides.
 - LATEX procedure shall be followed for Mathematics projects.
 - GUIDELINES ON THESIS (WITH STATIONERY ECONOMY MEASURES):**

 - Number of Pages (inclusive of prefix and suffix):

- 1. V semester Project Maximum 40 pages;
- 2. VI semester Project Maximum 60 pages,
- 3. PG Projects Maximum 80 pages;Iv) MPhil., maximum 100 pages.
- ii. Size of the paper A4; Font Times New Roman; Title 14 Capitals/Bold; Subtitle 12 Capitals/Bold; Runningmatter 11.
- iii. Left and Right margin 1 and half inch; Top and bottom margin 1 inch
- iv. Line space 1.5
- v. Table and Figures shall be in separate sheets (without page number). More than 1 table or figure or plate is permitted in a page. Table number followed by the title should be on the top of the respective table. SimilarlyFigure Number followed by title be at the bottom of the respective figures. Regarding Plates ie photographs only original photographs (printed in photo sheet) of the work carried out and scientifically relevant to be included. The size the photographs should be reduced and neatly arranged in a page with appropriate title or sub title. Plate Number followed by the title be at the bottom of the photographs concerned.
- vi. Number of copies:
- vii. Copy 1 – Student copy – Neatly typed on one side with good binding to be submitted (to be returned immediately after examination)
- viii. Copy 2 – Department copy - Neatly typed on both sides of the paper with stapler pin binding –Copies of all students have to be bound in volumes of 1 or 2 and kept in the department for reference.
- ix. Copy 3 - Autonomous Office copy – Projects of all students as one CD/DVD & Hard copy of the abstract/extended abstract as OHP bound booklet.
- x. For PG & MPhil., (Candidate copy - Hard bound (one side print), Autonomy (CD), Guide copy (CD), Department (CD containing all projects of the class), Central library (CD containing all projects of the class) & Hard copy of the abstract/extended abstract as OHP bound booklet.
- xi. Uniform structure/composition of the thesis:

Uniformity in Prefix contents for all disciplines			
1	Wrapper page		
2	Wrapper page copy		
3	Contents		
4	Acknowledgement by the candidate		
5	Declaration by the Candidate with candidate’s Photo attested by HoD		
6	Certificate by the supervisor, countersigned by HoD		
7	Evaluation Examiners Page		
Running matter structure Arts, Languages, Humanities		Running matter structureScience	
1	Abstract/Extended Abstract	1	Abstract/Extended Abstract
2	Introduction	2	Introduction
3	Review of Literature	3	Review of Literature
4	Profile of The Study	4	Materials
5	Methodology & Data collection	5	Methodology
6	Analysis and Interpretation	6	Results
7	Findings, Suggestions and Conclusion	7	Discussion
8	Bibliography(Uniform format)	8	Bibliography (Uniform format)
Uniformity in Suffix – contents			
Publications – Xerox of Abstracts/extended abstracts/Full papers			

b. Bibliography: Arts & Science.

c. Research article:

Latha, P., Dhanabackialakshmi, R., Kumar, P.S. and Karuthapandian, S. 2016. Synergistic effects of trouble free and 100% recoverable CeO₂/Nylon nanocomposite thin film for the photocatalytic degradation of organic contaminants. Separation and Purification Technology, 168(2): 124–133

ii. Conference / Seminar / Symposium papers

Peng, J., Zhang, X., Lei, Z., Zhang, B., Zhang, W. and Li,Q. 2009. Comparison of several cloud computing platforms. In: Proceedings of Second International Symposium on Information Science and Engineering, 23 – 27

iii. Books

Versteeg, H.K. and Malalasekera, W. 2007.An Introduction to Computational Fluid Dynamics. II Edn. Pearson Education Ltd., New York, pp. 517

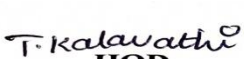
iv. Book Chapters

Wade, S.E. 1981. Statistical designs for survey research. In: Stempel, G.H. and Westley, B.H. (Eds.). Research methods in mass communication.Printice Hall India Learning India Ltd., New Delhi, pp. 167

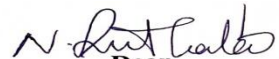
v. Web reference

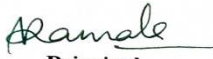
National Institute of Mental Health.2018, July.Anxiety disorders. U.S. Department of Health and HumanServices, National Institutes of Health. <https://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>

(Author to be included first, date to be included before month, if available)


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SEMESTER VI

Programme: B.A	Subject: ECONOMICS
Course code:19UECC61	Course Title: Macro Economic Theory and Practice
Category:Core-11	Credits:5

Objectives:

- To enable the students to understand the concepts, theoretical foundations and methods of analysis in Macro Economics.
- To develop the skill in evaluating macroeconomic policies of economic development

Units	Syllabus	Outcomes	Hours
I	THEORIES OF DISTRIBUTION: The Ricardian or Classical theory of distribution – Criticisms – Marxian theory of Income distribution – Critical evaluation – Kaldor’s theory of distribution – Critical appraisal of Kaldor’s theory.	The Students can - Analyse the theories of distribution - Know about classical theory of distribution - Diagnose the factors of distribution	18
II	THE INVESTMENT FUNCTION: Meaning of Capital and Investment: Types of Investment – Induced Vs Autonomous – Determinants of Investment - Rate of Interest – The Marginal Efficiency of Investment (MEI) – Relation between the MEC and the MEI - Factors affecting induced investment.	The Students can - recognize the investment and its types - understand the concept of MEC& MEI - analyze the factors of induced investments	18
III	KEYNESIAN ECONOMICS: Keynesian tools and concepts – Effective demand – Under employment equilibrium – Inflationary gap – Liquidity preference – Multiplier – Characteristics of Keynesian Economics – Relevance of Keynesian theory in underdeveloped countries.	The Students can - define inflationary gap - understand the concept of liquidity preference through speculative motive - know the application of Keynesian theory in an underdeveloped country	18
IV	MARXIAN ECONOMICS: Economic ideas of Karl Marx – Characteristics of Marxian Economy- Comparison of Karl Marx ideas with Classical and Modern Economists ideas	The Students can - know the economic ideas of classical and modern economists - illustrate the characteristics of Marxian economy - Analyze the various concepts of Marxian economics	18
V	MACRO ECONOMIC POLICY: a) Monetary Policy: Instruments of monetary policy and its working - Expansionary and Restrictive monetary policy. b) Instruments of fiscal policy and its working - Pump priming and compensatory fiscal policy.	The Students can - illustrate the working of fiscal policy and monetary policy - dispute the effectiveness of Macro Economic policies - Recognize the role of ethical values in economic decisions	18

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Macro Economic Theory	M.L. Jhingan	2013 (6)	Vrinda Publications, New Delhi.
2.	Macro Economic Theory	S. Sankaran	2018 (7)	Margam Publications, Chennai.

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Macro Economic Theory and Policy	H.L.Ahuja	2010 (16)	S.Chand & Company LTD., New Delhi.
2.	Macro Economics	Charles I.Jones	2010 (1)	W.W.Norton&Company, London.
3.	Macro Economic Theory	M.C.Vaish	2010 (14)	Vikas Publishing House, New Delhi.


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SEMESTER VI

Programme: B.A	Subject: ECONOMICS
Course code:19UECC62	Course Title: Public Finance
Category:Core-12	Credits:5

Objectives:

- To Understand the equitable distribution of wealth within the society.
- To understand the importance of Public finance, taxation, state and central budget.

Units	Syllabus	Outcomes	Hours
I	NATURE AND SCOPE OF PUBLIC FINANCE: Definition, scope and subject matter of public finance – Importance of Public finance-Distinction between Private and Public finance-Role of Public finance in developing and developed economics-Principle of Maximum Social Advantage – Concept of Public goods – Characteristics of public goods - Private goods – Merit goods – Distinction between private goods and public goods	The students can • understand the importance of public finance, • gain the full-fledged knowledge about the sources of finance in both private and public, • demonstrate the role of government to correct the market failures.	15
II	PUBLIC EXPENDITURE Meaning and Definition-Scope – Public expenditure and Private expenditure – Growth of Public Expenditure – Reasons for the growth of public expenditure with special reference to India – Types of public expenditure – Causes of public expenditure – Effects of Developmental and Non-Developmental expenditure in India.	The Students can • secure the knowledge of Public investment, • understand the causes of growing public expenditure, • describe the effects on developmental and non-developmental expenditure in India.	15
III	PUBLIC REVENUE Meaning and Definition -Sources – Classification – Objectives of Taxation – Canons of Taxation – Types of Taxation - Tax Revenue and Non-Tax Revenue –Objectives of taxation – Direct and Indirect taxes – Characteristics of a Good Tax system. Taxable capacity – Factors determining Taxable capacity –Shifting and Incidence of Taxation – Effects of Taxation.	The Students can • find out the reasons for growing public revenue, • have a knowledge about taxation, • attain the skill about the taxable capacity in India.	15
IV	PUBLIC DEBT Meaning and Definition - Objectives of Public Borrowing – Reasons for the growth of public debt – Classification -Benefits and Dangers of Public Debt –Effects – Burden – Principles of Public debt Management- Methods of redemption of public debt – Repudiation, Refunding,Conversion,Actual Repayment-Debt burden in India.	The Students can • understand the reasons for growing public debt, • have a knowledge about Public debt management, • attain the skill about the debt burden in India.	15
V	BUDGETING AND FINANCIAL RELATIONS BETWEEN THE CENTRE AND THE STATES Evolution and purpose of Budgeting - Budgetary procedure in India – Budget classification – Programme and Performance Budget – Zero base Budgeting – Financial Relations under the constitution – The Finance Commission – Recommendations of the last two Finance Commissions.	The Students can • deliver effectively the preparation of budget, • identify the changes in size and flexibility of state and central budget, • evaluate the financial relations between the center and the state.	15

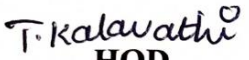
Text Books:

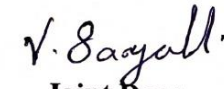
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Public Finance	Dr.R.Cauvery	2010 (1)	S.Chand&Company, New Delhi.
2.	Money, Banking, International Trade and Public Finance	M.L.Jhingan	2002 (6)	Vrinda Publication(p) Ltd., New Delhi.

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Public Finance Theory and Practice	K.P.M. Sundharam.	2002 (3)	S.Chand& Company Ltd., New Delhi.
2.	Modern Public Finance Theoryand Practice	D.M.Mithani	2000 (2)	Himalaya Publishing House, Mumbai.
3.	Public Finance Theory and Approach	Dr.N.Radhakrishnan	2011 (3)	Vrinda Publications(p) Ltd., New Delhi.

Website Link:<https://www.shodhganga.inflibnet.ac.in>


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SEMESTER VI

Programme: B.A	Subject: ECONOMICS
Course code: 19UECC63	Course Title: Planning and Growth
Category:Core-13	Credits:5

Objectives:

- To examine the core issues and theories in economic development.
- To gain knowledge about the dynamics of development.

Units	Syllabus	Outcomes	Hours
I	INTRODUCTION: Definition and meaning of Economic development - Distinction between economic growth and development - Characteristics of under development economy - Vicious circle of poverty- Obstacles to Growth and Development.	The students can • understand the difference between the economic growth and development, • evaluate the developmental issues, • identify the obstacles of economic growth and development.	12
II	PLANNING: Meaning – Objectives – Types – Evaluation of Indian planning – Models of economic Development-Nehru Vs Gandhi-LPG Model of development-PURA-A Neo Gandhian Approach to Development- Five year plans achievements and failures – NITI AAYOG- Economic Reforms.	The Students Can • have awareness about NITIAYOG, • be familiar about PURA, • enrich their knowledge about the economic development in India.	12
III	THEORIES OF DEVELOPMENT: Classical theory –Adam Smith-Ricardo-Malthus- Rostow stages of development – Balanced growth and Unbalanced growth theory – Big Push theory- Critical Minimum and Maximum Effort Theory.	The Students can • attain the knowledge about the classical theory, economic growth and development, • Get the knowledge about the values, wage, and good model theory, • know about countries economic development by classical an in modern way.	12
IV	GROWTH MODELS Meaning and uses of growth models -Harrod Domar Model- Conditions of Required for Steady Growth- Domar Model of Economic Growth-Harrod- Domar Analysis-A Brief Resume- Comparison of Two Models-Wage goods models	The Students Can • enrich their knowledge about the economic development in India, • evaluate the strength and weakness of new economic reforms, • analyse the three growth sectors.	12
V	DEVELOPMENT ISSUES: Case issues and against industrial and agricultural development – Technology unalive and capital intensive technology – Technology problems and remedies -Digital India- Meaning and concepts-Applications methods of Digital era.	The Students Can • demonstrate the effect of digital transaction, • analyze the implication of Digital era, • illustrate the implication of capital-intensive and Labour-intensive.	12

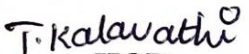
Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Planning and Growth	Dr.Prabhakaran.	1982 (1)	Shanthi Book House, Tirunelveli
2.	The Economics of Development and Planning	M.L.Jhingan	2002 (35)	Vrinda Publications, New Delhi.

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Economics of Development and Planning	S.K.Misra	1998 (7)	Himalaya Publishing House,New Delhi.
2.	Economic Planning Theory & Practice	M.L.Seth	1998 (8)	S.Chand & Company,New Delhi
3.	Economic of Development and Planning in India	I.C.Dhingra&V.K.Garg	2003 (15)	S.Chand & Company,New Delhi

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SEMESTER VI

Programme: B.A	Subject: ECONOMICS
Course code: 19UECC64	Course Title: Labour Economics
Category:Core-14	Credits:5

Objectives:

- To understand the functioning and dynamics of the market for wage labour.
- To Study the importance of social security to unorganized sector workers.

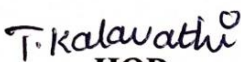
Units	Syllabus	Outcomes	Hours
I	LABOUR AS A FACTOR OF PRODUCTION: Meaning of Labour – Characteristics of Indian Labour, Migratory character – Causes of migration, Nature and Effects of Migration. Labour Efficiency – Causes for labour inefficiency in India – Remedial measures for Labour Inefficiency.	The students can • acquire the Knowledge about the characteristics of Indian labour. • know about the migration • analyze the causes of labour inefficiency	12
II	TRADE UNIONS AND INDUSTRIAL DISPUTES: Meaning and definition- Types of Trade union – Objectives – Functions importance– Trade union in India- Industrial Disputes – Causes – Methods of Settling Industrial disputes – Collective Bargaining – Objectives – Process of Collective bargaining.	The students can • analyze Industrial disputes from practical classes • understand the collective bargaining for purchasing the resources. • know about Industrial law	12
III	WORKERS PARTICIPATION IN MANAGEMENTAND WORKERS EDUCATION: Works Committee – Joint Management Council – Workers participation in Management in India – Workers Education – Objectives – Functions – Workers Education inIndia-Importance of workers Education in India.	The Students Can • get vivid picture on the education level • know the importance of worker’s education in India • diagnose the benefits workers participation in management	12
IV	LABOUR WELFARE: Meaning and Scope of Labour Welfare – Objectives – Intramural and Extra mural Labour Welfare Measures – ILO – Aims and Functions – India and ILO.	The Students Can • obtain the skill about Labour economics through the concept of labour welfare measures and social welfare measures. • dispute the remedial measures of labour. • Know about ILO	12
V	SOCIAL SECURITY: Meaning-Objectives –Need for Social Security- Social Security Measures in India – Social Insurance – Social Assistance - Difference between social Insurance and Assistance.	The Students Can • get information’s about systems of labour welfare. • know about the importance of social security measures. • get knowledge of labour economics in India.	12

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Labour Economics and Social Welfare	Dr. B. P. Tyagi	2000 (9)	Jai PrakashsNath&co., Meerut.
2.	Industrial Relations &Labour Legislations	M.R.Sreenivasan	2009 (2)	Margham Publications, Chennai.

Reference Books:

S.No	Title of the Book	Author/s	Year(Edn)	Publisher/s
1.	Economic andLabour Laws	S.S.Gulshan&G.K.Kapoor	2010 (4)	Sultan Chand &Sons,New Delhi.
2.	Hand Book of labour Economics	OrelyAshenfelter	2001 (1)	North Holland Publications, USA
3.	The Labour market	Don.D.Lescohier	1923 (1)	Macmillan Publication, New York


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SEMESTER VI

Programme: UG	Subject: ECONOMICS
Course code: 19UECC65	Course Title: Economic Thinkers
Category : Core-15	Credits:5

Objectives:

- To assess the efficiency and effectiveness of functions and their cost implication.
- To understand the policy relevance and utility through Planning

Units	Syllabus	Outcomes	Hours
I	INTRODUCTION: Origin, Meaning and Definition – Nature and scope – Importance of Economic Thought – Relativist and Absolute Approaches to Economic Thought. Adam Smith’s Wealth definition – Division of Labour– Theories of Trade and Distribution.	The students can • understand the nature and scope of economic thought • know the importance of economic thought • get the knowledge about the economic thinkers	12
II	CLASSICAL THINKERS: Theory of Value – Capital Accumulation – Free Trade – Role of State - Stationary State – David Ricardo – Rent and Value Analysis– Interest and profit-Comparative cost-Stationary state –critical appraisal -Malthus-J.B.say-J.S.Mill Hedonism-Liberalism-Deviation from Classical Classification-Classical Stationery State with Special reference to Mill’s views.	The students can • know the value of labour division. • understand the theories of trade and distribution. • gain the knowledge about Mill’s view of classical stationary.	12
III	NEO-CLASSICAL THINKERS: Alfred Marshall: Contribution to Consumption and Production-Internal and External Economics-Representative Firm- Quasi Rent-Pigou’s Welfare Economics-Wage and Employment.	The students can • understand the contribution of consumption and production. • identify the internal and external economics. • know the Pigou’s Welfare Economics.	12
IV	SOCIALISTIC AND MODERN THINKERS: Utopian Socialism –Ideas of saint Simon-Robert Owen and Fourier –Collapse of Capitalism-Scientific Socialism: Materialistic Interpretation of History- Class Struggle- Labour Theory of Value - Surplus Theory of Value- Industrial Reserve Army. Keynesian Revolution – Schumpeter-Neo Keynesian Economics-Hicks and Paul A Samuelson	The Students can • understand the ideas of saint Simon. • illustrate the collapse of capitalism – scientific socialism. • know the revolution of Keynesian economics.	12
V	INDIAN ECONOMIC THINKERS NOBEL LAUREATES: Swami Vivekananda –Gandhi-J .C.Kumarappa-V.K.R.V Rao-Jawaharlal Nehru-Ranade – DadabhaiNaroji-V.N. Gadgil –Amartya Sen-Recent Contributions inEconomics (Last Five Years 2015-2019	The students can • understand the Indian economic thinkers. • know the contribution of Nobel laureates. • get the knowledge of recent contribution of economics.	12

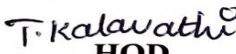
Text Books:

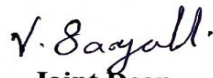
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	A History of Economic Thought	S. Sankaran	2010 (4)	Margham Publication,Chennai
2.	A History of Economic Thought	V.Lokanathan	2010 (10)	S.ChandPublications&co Ltd, New Delhi.

Reference Books:

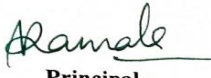
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Concise History of EconomicThought	B.N.Ghosh,Rama Ghosh,	1996 (3)	Himalaya Publishing House, Mumbai
2.	A History of Economic Thought	M.L.Jhingan &Co	2006 (2)	Virinda Publication, New Delhi.

Website Link: <https://www.nobelprize.org>


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Joint Dean
Dr. V. Sangeetha


Dean
Smt. N. Lavanya


Principal
Dr. N. Kamala

SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI – 627 011

DEPARTMENT OF ECONOMICS

CERTIFICATE PROGRAMME CERTIFICATE IN FUNDAMENTALS OF ECONOMICS

1. COURSE TITLE:

Fundamentals of Economics

2. OBJECTIVES:

- Students can study scope of economics.
- Students can understand the factors of production.
- The students know the functions of money.
- The students can analyse the globalization in India.

3. OUTCOMES:

- To acquire new Economic information and analytical skills.
- To write small economic essays in clear and concise fashion with emphasis on content style and clear analytical rigor.
- To organise and present ideas and information orally.
- To design and carry out independent and collaborative projects

4. SYLLABUS / UNITS

UNIT – I Introduction to Economics:

Meaning and scope of Economics – Basic concepts in Economics - Human wants – goods – Utility – Value –Price – Income – Wealth – Welfare – Market – Supply –Demand – Cost – Revenue – Capital .

UNIT –II Consumption:

Meaning of the terms – Consumer - Consumption - Producer – Production – Factors of production - Utility maximization

UNIT – III Evolution of Money :

Barter System- Meaning and Definitions of Money-Functions of money-Qualities of good money-Kinds of money

UNIT – IV Introduction to Statistics:

Definition of Statistics -Features – Significance- Functions – Limitations

UNIT – V Inflation and Deflation:

Meaning of Inflation and Deflation, Recent Trends in India’s Foreign Trade -Globalization in India

Text Book:

S. No.	Title	Author/s	Year (Edn)	Publisher/s
1.	Micro Economics	M. John Kennedy	2001 (2)	Himalaya Publishing House

Reference Book:

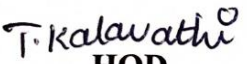
S. No.	Title	Author/s	Year Edn)	Publisher/s
1.	Statistics	R.S.N. Pillai Bagavathi	2016 (8)	S.Chand & Company Pvt. Ltd., New Delhi.

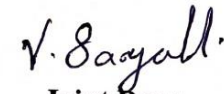
5. ELIGIBILITY FOR ADMISSION: Minimum +2 (Open to all on their option)

6. DURATION OF THE COURSE: 35 Hours (1 Semester)

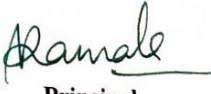
7. EXAMINATION/EVALUATION COMPONENTS:

Internal 40	External 60
Average of two test = 20 marks Assignment = 5 marks Quiz = 5 marks Field visit/case study/Record = 10 marks	Section A – True/False = 10 marks Section B – 5 out of 8 (4 marks) = 20 marks Section C – 3 out of 5 (10 Marks) = 30 marks


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SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI – 627 011DEPARTMENT OF ECONOMICS

CERTIFICATE PROGRAMME CERTIFICATE IN ESSENTIAL ECONOMETRICS

1. COURSE TITLE:

Essential Econometrics

2. OBJECTIVES:

- Students can study scope of econometrics.
- Students can understand the collection of data.
- The students know the statistical properties.
- The students can analyse the explanatory variables.

3. OUTCOMES:

- To acquire the goals of Econometrics.
- To analyse the linear Regression model.
- To evaluate the specification of the methodology of Econometrics.
- To design and carry out forecasting analysis.

4. SYLLABUS / UNITSUNIT – I Introduction

Definition & Scope of Econometrics – Relationship between Econometrics, Mathematical Economics and Statistics –Goals of Econometrics – Limitations – Divisions of Econometrics.

UNIT – II Methodology of Econometrics

Methodology of Econometrics – Specification of the Model – Collection of Data – Estimation of the Model – Evaluation of the Co-efficient of the Model. Forecasting Power of the Model – R-square, Estimation and Evaluation.UNIT -III Linear Regression Model

Meaning – Assumptions – Least Square Methods – Statistical Properties of Least Square Estimations –Goodness of Fit –Simple Problems.Meaning – Assumptions – Statistical Properties Least Square Estimations – [GLRM] – General Linear Regression Model – Simple Problems with Two Explanatory variables.

UNIT – IV Violation of OLS Assumption

Auto Correlation, Heterocedasticity – Multicollinearity - Sources, Consequences, Test, Remedies.

UNIT – V Forecasting Analysis

Meaning – Stationary & Non-Stationary – Time series analysis – Methods of Forecasting.

Text Book:

S. No.	Title	Author/s	Year (Edn)	Publisher/s
1.	Basic Econometrics	Damodar N. GujaratiDawn C. Porter SangeethaGunasekar	2019 (5)	Tata McGraw Hill Education Pvt. Ltd., New Delhi.

Reference Book:

S. No.	Title	Author/s	Year Edn)	Publisher/s
1.	Statistics Theory and Practice	R.S.N. PillaiBagavathi	2016 (8)	S.Chand& Company Pvt. Ltd., New Delhi.

5. ELIGIBILITY FOR ADMISSION: Minimum+2 (Open to all on their option)

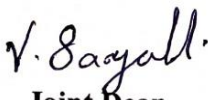
6. DURATION OF THE COURSE: 35 Hours (1 Semester)

7. EXAMINATION/EVALUATION COMPONENTS:

Internal 40	External 60
Average of two test =20 marksAssignment =5 marks Quiz =5 marks Field visit/case study/Record = 10 marks	Section A – True/False = 10 marks Section B – 5 out of 8 (4 marks) = 20 marks Section C – 3 out of 5 (10 Marks) = 30 marks



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SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI – 627 011DEPARTMENT OF ECONOMICS
CERTIFICATE PROGRAMME

CERTIFICATE IN COMPUTER DATA ANALYTICS FOR ECONOMISTS

1. COURSE TITLE:

Computer Data Analytics for Economists

2. OBJECTIVES:

- Students can study graphs and diagrams.
- Students can understand the simple arithmetic.
- The students know the structured query language.
- The students evaluate online transactions.

3. OUTCOMES:

- To understand the computations and descriptive of data analysis using SPSS.
- To analyse the database management using single user system.
- To evaluate the advantages of e-banking services.
- To carry out the presentation of a case on online purchase of products.

4. SYLLABUS / UNITS:

UNIT – I Data Analysis Using SPSS

Computations and Descriptives – Graphs and Diagrams- Correlation- Regression - ANOVA (Analysis of Variance)-Chi Square - Multiple Regression.

UNIT – II Database Management Using Single User System

Excel: Simple arithmetic- Tables and Graphs –Formula- Trend Analysis – Forecasting.

UNIT -III Database Management Using Multiple User System

Data base management using SQL (Structured Query Language) server- MySQL server –Tables and Sorting - Projects in DBMS (Data Base Management System).

UNIT – IV E – Banking

.Electronic Banking: Types - E- Channels in E-Bank - Online Bank Services - Core Banking – Online Payment Modes – ATM (Automated Teller Machine)-Advantages of E-Banking- Question of security.

UNIT – V Dynamism

1. Case study of online transaction.
2. Presentation of a case on online payment using e-banking.
3. Presentation of a case on online payment for e tickets (flight, bus or train).
4. Presentation of a case on online purchase of products in trading websites.
5. Presentation of a case on online purchase and sales of used products using OLX (On Line eXchange) or any.

Text Book:

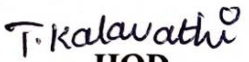
S. No.	Title	Author/s	Year (Edn)	Publisher/s
1.	Business Data Science	Matt Taddy	2019 (1)	McGraw Hill Professional Publication

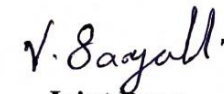
5. **ELIGIBILITY FOR ADMISSION:** Minimum+2 (Open to all on their option)

6. **DURATION OF THE COURSE:** 35 Hours (1 Semester)

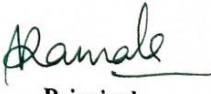
7. **EXAMINATION/EVALUATION COMPONENTS:**

Internal 40	External 60
Average of two test =20 marks Assignment =5 marks Quiz =5 marks Field visit/case study/Record = 10 marks	Section A – True/False = 10 marks Section B – 5 out of 8 (4 marks) = 20 marks Section C – 3 out of 5 (10 Marks) = 30 marks


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SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI – 627 011

DEPARTMENT OF ECONOMICS

DIPLOMA PROGRAMME

DIPLOMA IN ECONOMICS OF NGO MANAGEMENT

1. COURSE TITLE:
Economics of NGO Management
2. OBJECTIVES:
 - Students evaluate the functions of NGOs.
 - Students can know the recent foreign contributions and regulations.
 - Students understand the methodology of project planning.
 - Students analyse the formulation of project proposals.
3. OUTCOMES:
 - To impart latest and most relevant skills set to a student for a career in this field.
 - It is for the upliftment of practical skills and tools to manage.
 - To lead effectively a non-profit organization.
 - To prepare fund raising approaches and grant proposals.
 - To translate a strategic plan into an operational plan.
4. SYLLABUS/UNITS:

UNIT- I: Social Entrepreneurship & N.G.Os:
Social Entrepreneurship : Meaning, NGO Meaning, Concepts, Objectives and Functions- NGOs and their independence from government - relations with business and commerce – Vision, Mission and Goals in NGOs - Role of NGO’s in Community Development.

UNIT –II NGO Registration Methods
Trust and Society Registration Acts- Foreign Contributions and Regulation Act (FCRA) - Statutory Obligations - Income Tax Exemption Rules and Regulation - Resource Mobilization: Methods and Techniques of Fund Raising - International, National and Local Levels.

UNIT –III Project Planning:
Possible NGO Projects – Objectives of project Planning - Importance and Methodology of project Planning -Micro and Macro Level Planning

UNIT- IV Project Proposal and Dimensions
Identification – Need assessment – Formulation Project Proposal - Project Appraisal: Technical, Economicand Financial Feasibility.

UNIT –V Project Management in NGO’s
Project monitoring – Participatory Impact Assessment (PIA) – Distributing information – Evaluation – purposeof evaluation – phases.

UNIT-VI Dynamism
Preparing a Project Proposal for any issue like child issues, Environmental issues, sexual harassment, gender discrimination, old age home, orphanage, refugee homes, affected women. Case study of any social entrepreneur/NGO Case study of any one trust or society. One-day experience at any one NGO and finding and writing report on the sourceof fund management

Text Book:

S.No.	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Entrepreneurial Development	Dr.S.S.Khanka	2012 (4)	S.Chand& Company. New Delhi.

Reference Books:

S.No.	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Entrepreneurship Development	King’s	2002 (1)	King’s Books, Delhi

5. **ELIGIBILITY FOR ADMISSION:** Minimum+2 (Open to all on their option)
6. **DURATION OF THE COURSE:** 65 Hours (2 Semesters)
7. **EXAMINATION/EVALUATION COMPONENTS:**

Internal 40	External 60
Average of two test =20 marks Assignment =5 marks Quiz =5 marks Field visit/case study/Record = 10 marks	Section A – True/False = 10 marks Section B – 5 out of 8 (4 marks) = 20 marks Section C – 3 out of 5 (10 Marks) = 30 marks


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SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI – 627 011DEPARTMENT OF ECONOMICS

DIPLOMA PROGRAMME DIPLOMA IN WOMEN STUDIES

1. COURSE TITLE:

Women Studies

2. OBJECTIVES:

- Students evaluate the women’s movement.
- Students can know the recent trends in women’s education.
- Students understand the need for women’s rights.
- Students analyse the problems of women entrepreneur.

3. OUTCOMES:

- The programme skills the candidates in matters concerning women welfare.
- The students competent to undertake the programme in the field.
- They have an opportunity in the areas of dealing with women empowerment.
- It brings to limelight the issues and problems faced by women belonging to different dimension of the society.

4. SYLLABUS/UNITS:

UNIT – I Introduction
Need, Scope and Challenges of Women’s Studies – Women’s Movements – National Committees and Commission for Women.

UNIT – II Women’s Education
Gendered Education – Family, Culture, Gender roles – Education for the Marginalized Women – Recent Trends in Women’s Education – Vocational education and skill development for women.

UNIT – III Women and Health
Health status of Women in India – Factors influencing health and Nutritional status – Maternal and Child Health (MCH) – Occupational and Mental health – Health, Hygiene and Sanitation – Population policies and programmes.

UNIT – IV Women’s Law and Right
Personal Laws – Labour Laws - Family Courts – Police and Judiciary – Need for Women Right – Dowry Problems Encountered by Indian Women – Women’s Movements to protect the Environment – Women Rights in India.

UNIT – V Women Entrepreneur
Role of Women Entrepreneur – Problems of Women Entrepreneur- Self-employment development – Incentives and subsidies for Women Entrepreneurship – Requirements of successful Women Entrepreneur.

Text Book:

S.No.	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	New Dimensions of Women Empowerment	Dr.Ajay Kumar Singa	2009 (1)	Sultan Chand

Reference Books:

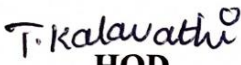
S.No.	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Value Based Education	Dr.N.Arumugam, Dr.Mohana & Palkani	2018 (5)	Saras Publications
2.	Entrepreneurship Development	King’s	2002 (1)	King’s Books, Delhi

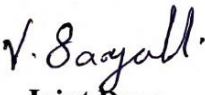
5. **ELIGIBILITY FOR ADMISSION:** Minimum+2 (Open to all on their option)

6. **DURATION OF THE COURSE:** 65 Hours (2 Semesters)

7. **EXAMINATION/EVALUATION COMPONENTS:**

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DEPARTMENT OF ECONOMICS

DIPLOMA PROGRAMME

DIPLOMA IN ECONOMIC DEVELOPMENT OF TAMILNADU

1. COURSE TITLE:

Economic Development of Tamil Nadu

2. OBJECTIVES:

- Students can know the tax and non tax revenue.
- Students can understand the energy schemes.
- Students can evaluate the health schemes.
- Students analyse Tirunelveli economy.

3. OUTCOMES:

- To analyse the Tamil Nadu economy.
- To evaluate the agriculture and energy schemes.
- To understand the challenges facing Tamil Nadu.
- To develop the Tirunelveli economy fiscal position.

4. SYLLABUS/UNITS:

UNIT – I Configuration of Tamil Nadu Economy

Population composition – Occupational Structure, GDI, PCI.- HDI - Fiscal position: Tax and Non tax Revenue
– Expenditure- Borrowing.

UNIT – II Sectoral Developments in Tamil Nadu

Agriculture: Food crops and Non food crops – Energy: Nuclear-Hydel- Thermal- Wind – Energy Schemes -Industry and Infrastructure:
Textile- Electronics - Transport-Education.

UNIT – III Schemes of Tamil Nadu

Industrial Supports – Agricultural Supporting Schemes - Health Schemes, Educational Schemes Free and Subsidy Schemes available in
Tamil Nadu.

UNIT – IV Challenges facing Tamil Nadu

Challenges of Farmers- Water Scarcity - Water Dispute – Deforestation – Urbanisation - Coastal Issues –Pollutions.

UNIT – V Tirunelveli Economy

Special features of Tirunelveli, Fiscal position: Tax and Non Tax Revenue – Expenditure of different heads-Borrowing – Planning and
development standards – Industries and Agriculture around Tirunelveli – Tourism.

Text Book:

S.No.	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Economic Development of Tamil Nadu in Perspective	S. Manickam	2006 (1)	Uyirrmmai Publication, Chennai.

Reference Book:

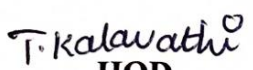
S.No.	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Indian Economy	Gaurav. D and Ashwani.M.	2015 (70)	S. Chand & Co.New Delhi.

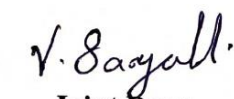
5. ELIGIBILITY FOR ADMISSION: Minimum+2 (Open to all on their option)

6. DURATION OF THE COURSE: 65 Hours (2 Semesters)

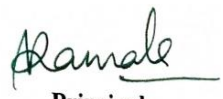
7. EXAMINATION/EVALUATION COMPONENTS:

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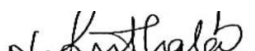
Degree: B.Com

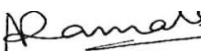
Programme Structure (2019-2022)

Sem	Part	Category	Course code	Course title	Hours/week			Credits
					L	P	T	
1	I	Language	19P1TB1/ 19P1SB1	Tamil/Sanskrit	6	0	6	4
1	II	English	19P2EB1	General English I	6	0	6	4
1	III	Core 1	19UCOC11	Principles of Accounting	5	0	5	4
1	III	Core 2	19UCOC12	Business Organisation	5	0	5	4
1	III	Allied 1	19UCOA11	Business Economics	6	0	6	4
1	IV	Common	19UCES11	Environmental Studies	2	0	2	2
				Sub Total	30	0	30	22
2	I	Language	19P1TB2/ 19P1SB2	Tamil/Sanskrit	6	0	6	4
2	II	English	19P2EB2	General English II	6	0	6	4
2	III	Core 3	19UCOC21	Financial Accounting	5	0	5	4
2	III	Core 4	19UCOC22	Principles of Management	5	0	5	4
2	III	Allied 2	19UCOA21	Marketing	6	0	6	4
2	IV	Common	19UCVE 21	Value Based Education	2	0	2	2
				Sub Total	30	0	30	22
3	III	Core 5	19UCOC31	Business Accounting	6	0	6	4
3	III	Core 6	19UCOC32	Business Mathematics	5	0	5	4
3	III	Core 7	19UCOC33	Banking Theory, Law and Practice	5	0	5	4
3	III	Core 8	19UCOC34	Computer Application in Business	5	0	5	4
3	III	Allied 3	19UCOA31	Business Communication	3	0	3	3
3	IV	NME	19UNCO3A 19UNCO3B	Principles of Accountancy Consumer Awareness	2	0	2	2
3	III	Skill Based	19UCOS31	Entrepreneurship Development	4	0	4	4
3	IV	Common	19UCYP31	Yoga Theory and Practices	-	-	-	1
				Sub Total	30	0	30	26
4	III	Core 9	19UCOC41	Partnership Accounting	6	0	6	4
4	III	Core 10	19UCOC42	Business Statistics	5	0	5	4
4	III	Core 11	19UCOC43	Human Resource Management	5	0	5	4
4	III	Core 12	19UCOC44	Office Management	5	0	5	4
4	III	Allied 4	19UCOA41	E- Commerce	3	0	3	3
4	IV	NME	19UNCO4A 19UNCO4B	Financial Accounting Human Rights	2	0	2	2
4	III	Skill Based	19UCOS41	Business Taxation with GST	4	0	4	4
4	IV	Common	19UCDE41	Computers for Digital Era	-	-	-	1
4	IV	ExtensionActivity	19UNCC41/19U NSS41/19UYRC 41/19URRC41/1 9UPESY41/19U CCC41/19USSS 41/19UCGC41	Extension Activity NSS/NCC/YRC/RRC/PESSY/CCC/ SSS/CGC	-	-	-	1
				Sub Total	30	0	30	27
5	III	Core 13	19UCOC51	Corporate Accounting	6	0	6	4
5	III	Core 14	19UCOC52	Cost Accounting	6	0	6	4
5	III	Core 15	19UCOC53	Business Law	5	0	5	4
5	III	Core Elective 1	19UCOE51 19UCOE52 19UCOE53	Income Tax, Law and Practices- I Capital Market Financial Accounting Software	5	0	5	3
5	III	Core 16	19UCOCP51	Commerce for Competitive Examination/Project	6	0	6	6
5	IV	Skill Based Common	19UPDC51	Personality Development	2	0	2	1
				Sub Total	30	0	30	22
6	III	Core 17	19UCOC61	Company Accounts	6	0	6	4
6	III	Core 18	19UCOC62	Management Accounting	5	0	5	4
6	III	Core 19	19UCOC63	Industrial Law	5	0	5	4
6	III	Core 20	19UCOC64	Auditing	4	0	4	4
6	III	Core 21	19UCOC65	Company Organisation	5	0	5	4
6	III	Core Elective 2	19UCOE61 19UCOE62 19UCOE63	Income Tax, Law and Practices- II Financial Services Introduction to Database Management System	5	0	5	3
				Sub Total	30	0	30	23
Total					180	0	180	142


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SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI – 627 011

Programme: UG	Subject: Commerce
Course code: 19UCOC11	Course Title: Financial Accounting-I
Category: Core1	Credits: 4

Objectives:

1. To enable the students about the conceptual knowledge of financial accounting.
 2. To enable the students to learn fundamental aspects of financial accounting.
- Outcomes:
1. Students are able to prepare financial statement in accordance with appropriate standards.
 2. Students are able to prepare accounting information for planning and control for the evaluation of finance.
 3. Students are well acquainted with Bank Reconciliation Statement, Bills of Exchange and Single Entry System.

Units	Financial Accounting-I	Hours
1	Accounting – Meaning - Definition- Golden rules of Accounting – Branches of Accounting – Functions of Accounting – Advantages – Limitations –Book keeping – Difference between Book keeping and Accounting – Users of Accounting information – Accounting Principles – Concepts and Conventions – Accounts and classification – Double entry system of Accounting – Journal – Ledger - Subsidiary Books - Trial balance - Final Accounts –Adjustment entries.	15
2	Bank Reconciliation Statement – Meaning - Reasons for difference between cash book and passbook balance - Method of preparation of BRS. Errors - Rectification of Errors – Suspense Account.	15
3	Bills of Exchange - Meaning-Definition-Features-Parties involved- Essentials – Accounting Treatment – Renewal of the Bill – Noting Charges – Retiring the Bill – Insolvency – Accommodation Bill.	15
4	Depreciation – Meaning – Concepts – Causes-Basic factors affecting depreciation— Types: Straight Line Method – Written Down Value Method – Annuity Method – Sinking Fund Method – Insurance Policy Method- Revaluation Method. Change in the method of depreciation.	15
5	Single Entry System – Meaning – Features – Defects – Differences between single entry and Double entry system - Statement of affairs Method - Conversion method -	15

Text Books:

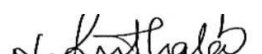
S. No	Book Title of the Book	Author	Year (Edn.)	Publication
1	Financial Accountancy	T.S.Reddy & A. Murthy	2011 (6)	Margham Publications, Chennai
2	Advanced Accountancy	S.P.Jain & K.L.Narang	2012 (18)	Kalyani Publishers, New Delhi
3	Introduction to Accountancy	T.S.Grewal & S.C.Gupta	2008 (8)	S.Chand & Company Ltd., New Delhi

Reference Books:

S. No	Book Title of the Book	Author	Year (Edn.)	Publication
1	Fundamentals of Advanced Accounting	R.S.N.Pillai, Bagavathi & S.Uma	2009 (3)	S.Chand & Company Ltd., New Delhi
2	Financial Accounting	Dr.T.Ramasamy	2012 (2)	Gold Books Publishing House, Virudhunagar.


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SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI – 627 011 Programme: UG	Subject: Commerce
Course code: 19UCOC12	Course Title: Business Organisation
Category: Core 2	Credits: 4

Objectives:

1. To impart the students about business and its role in society.
 2. To enable the student to undertake business activities.
- Outcomes:
1. Students acquire the basic idea of scope of Business.
 2. Students develop awareness about the concept of Business and Profession.
 3. Students are enable to understand the various types of Business organization.

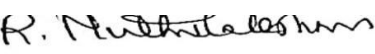
Units	Business Organisation	Hours
1	Nature and scope of Business: Concept of Business-Characteristics of business-human occupations-Profession, Employment and business- Comparison between Business with Profession - Divisions of business:-Industry and Commerce - Objectives of business-Essentials of a successful business- Qualities of a good businessman.	15
2	Types of Business organizations: Sole proprietorship- Hindu Undivided Family- Partnership-Joint Stock company - Co-operatives-Non profit business organizations under the Societies Act - Profit Organisations Vs Non-Profit Organisations. Public sector business units-Public utilities -Unique features - Merits and Demerits.	15
3	Partnership: Formation-Kinds of firms -Features, Merits and Demerits-Basic legal requirement for registration – PartnershipVs sole proprietorship- Suitability of partnership- Partnership deed and its contents- Kinds of partners- Rights and duties of partners-Dissolution.	15
4	Company: Meaning-Definition-Features-Kinds of companies-Private company-Public company-Prospectus -Memorandum of Association and Articles of Association-Joint Stock Company Vs Partnership firm. Multinational Companies: Meaning-Definition- Advantages-Disadvantages- Features- Importance-Growth of Multinational Companies in India.	15
5	Co-Operative Organization: Formation of Co-operative organization under the Societies Registration Act and Tamil Nadu Co-operative Societies Act-Eligibility for membership-Management of Co-operative organizations-Co-operatives versus Companies-Cooperatives versus Partnership-Types of Co-operatives-Co-operative Movement in India.	15

Text Books:

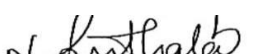
S. No	Title of the Book	Author	Year (Edn.)	Publication
1	Business Organization and Management	Dr.C.B.Gupta	2006 (9)	Sultan Chand & sons, New Delhi
2	Fundamentals of Business Organisation	Y.K.Bhushan	2000 (1)	Sultan Chand & sons, New Delhi
3	Business Organisation	S.Kathiresan,V.Radha	2000 (8)	Prasanna Publications, Chennai

Reference Books:

S. No	Title of the Book	Author	Year (Edn.)	Publication
1	Business Organization and Management	M.C.Shukla	2007 (18)	Sultan Chand & sons, New Delhi
2	Business Organization and Management	C.R.Pasu	2000 (1)	Tata Mcgraw Hill, New Delhi


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Ariakulam, Thoothukudi NH, Maharaja Nagar Post, TIRUNELVELI 627011

SEMESTER I

Programme: UG	Subject: Commerce
Course code: 19UCOA11	Course Title: Business Economics
Category: Allied 1	Credits: 4

Objectives:

1. To enable the students to understand the role of supply and demand in a market economy.
 2. To enhance the students about the knowledge on recent economic trends.
- Outcomes:
1. Students are enabled to know about the significance of Business Economics.
 2. Students can develop the knowledge about analysis of consumption, demand, production, supply and cost.
 3. Students are exposed about the pricing policies.

Units	Business Economics	Hours
1	Business Economics: Meaning, Nature and Significance of Economics –Fundamental Principles of economics– Scope of Economics – Role of economics in business decision making – Role and responsibilities of a business- Wealth Economics –Welfare Economics.	18
2	Consumption and Demand analysis: Significance of Consumption and Demand – Demand determinants – Demand Forecasting- Law of demand and demand curves – Types of demand – Concept of elasticity – Types of elasticity of demand - Methods of measuring price elasticity of demand – Relationship between price elasticity and sales revenue.	18
3	Production Analysis: Meaning of production –Factors of production and their characteristics – Production Possibility Curves – Concept of Total product – Average Product and Marginal Product – Fixed and variable factors – Classical and Modern approaches to the law of variable proportions – Law of returns to scale and Economics and Diseconomies of scale.	18
4	Supply and Cost analysis: Supply – Factors affecting supply – Law of supply – Elasticity of supply and types of elasticity of supply – Cost of production – Concepts of Cost– Sunk cost and future cost, direct cost and indirect cost – Cost curves-Types of cost – Total, Average, Marginal cost curves – Demand and Revenue curve -Relationship of MC to AC – Fixed and variable cost curves.	18
5	Price and output decisions: Role of Time in determining the value of products – Equilibrium conditions of a firm and Industry under various market forms – Price and output determination in a Perfect Market – Price and output determination in an Imperfect Market with specific reference to Monopoly, Monopolistic competition and Oligopoly-Pricing Policies.	18

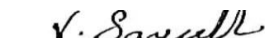
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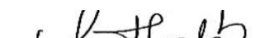
S. No	Title of the Book	Author	Year (Edn.)	Publication
1	Business Economics Text & Cases	D.D.Chathurveti	2002 (1)	Galgotia Publishers, New Delhi
2	Fundamentals of Business Economics	Mithani D.M, Murthy, S.Gopala Krishnan	2007 (16)	Himalaya Publishing House, New Delhi.
3	Business Economics	K.Pazhani	2018 (6)	Dinu offset, Sivakasi.

Reference Books:

S. No	Title of the Book	Author	Year (Edn.)	Publication
1	Business Economics	Dr.S.Sankaran	2000(3)	Margham Publication, Chennai
2	Managerial Economics	Mithani D.M	2000 (3)	Himalaya Publishing House, New Delhi.


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SEMESTER II

Programme: UG	Subject: Commerce
Course code: 19UCOC21	Course Title: Financial Accounting –II
Category: Core 3	Credits: 4

Objectives:

1. To enhance the students about critical and analytical approach to different types of accounting.
 2. To impart the students with real life opportunities to manage business accounts.
- Outcomes:
1. Students can understand the concept of Consignment and Joint Venture.
 2. Students are exposed to the concept of non trading concerns.
 3. Students are enabled to prepare all the self balancing ledgers.

Units	Financial Accounting –II	Hours
1	Consignment – Meaning - Definition - Need for Consignment – Account Sales–Treatment of Bad Debts – Del- Credere Commission – Over Riding Commission – Differences between consignment and sales-Valuation of Unsold Stock –Recurring and Non-recurring expense –, Normal and Abnormal Loss–Invoice Price Method.	15
2	Joint Venture – Meaning – Characteristics - Difference between Joint Venture and Partnership, Difference between Consignment and Joint Venture – Methods of Maintaining Accounts – Own Book Model (Joint Bank Account) – Separate Book Model – Memorandum Joint Venture Model.	15
3	Accounts of Non- Trading Concern – Meaning – Capital and Revenue Expenditure – Capital and Revenue Receipts – Difference between Capital and Revenue items – Income and Expenditure Account – Receipts and Payments Account - Income and Expenditure Account Vs Receipts and Payments Account- Balance Sheet.	
4	Average Due Date - Utility - Determination of due date-Average due date. Account Current- Meaning-Definition-Procedure for calculating days of interest- Red Ink Interest.	15
5	Self Balancing ledger- Specimen form and preparation of self balancing ledgers: Debtors ledger-Creditors ledger-General ledger-Sectional balancing. Insurance Claims: Average Clause -Loss of Stock – Loss of Profit.	15

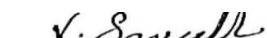
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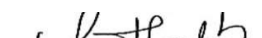
S. No	Title of the Book	Author	Year (Edn.)	Publication
1	Advanced Accountancy	S.P.Jain & K.L.Narang	2012 (18)	Kalyani Publishers, New Delhi
2	Financial Accountancy	T.S.Reddy & A. Murthy	2011(6)	Margham Publications, Chennai
3	Introduction to Accountancy	T.S.Grewal & S.C.Gupta	2008 (8)	S.Chand & Company Ltd., New Delhi

Reference Books:

S. No	Title of the Book	Author	Year (Edn.)	Publication
1	Financial Accounting	Dr.T.Ramasamy	2012 (2)	Gold Books Publishing House, Virudhunagar.
2	Fundamentals of Advanced Accounting	R.S.N.Pillai, Bagavathi & S.Uma	2009 (3)	S.Chand & Company Ltd., New Delhi


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SEMESTER II

Programme: UG	Subject: Commerce
Course code: 19UCOC22	Course: Principles of Management
Category: Core 4	Credits: 4

Objectives:

1. To familiarise the students with concepts and principles of management.
 2. To impart the students with knowledge on the functions of management.
- Outcomes:
1. Students can have a better understanding of planning and decision making.
 2. Students can get an idea about organization structure.
 3. Students develop awareness about the functions of Business Management.

Units	Principles of Management	Hours
1	Introduction to management- Meaning-Definition-Functions of management- Managerial skills- Levels of management-Roles of manager-Management as a Science or Art-Principles of management-Contributions to management by F.W.Taylor, Henry Fayol, Elton Mayo and Peter.F.Drucker-MBO-MBE.	15
2	Planning and Decision making- Planning-Importance of planning-Process of planning-Types of Planning - Objectives-Policies-Procedures-Strategies and Programmes - Obstacles to effective planning. Decision making- Types of decisions-Process of decision making- Decision tree.	15
3	Organising- Organisations - Importance-Principles of organizing- Organisational structure-Line and functional-Organisation charts and manuals. Departmentation- Bases Delegation- Meaning and definition- Principles of delegation-Authority and Responsibility-Centralisation and Decentralisation.	15
4	Directing- Directing-Importance and Principles of Directing. Motivation-Theories of motivation-Maslow- Herzberg Theories. Communication-Process-Barriers to effective communication- Leadership-Definition-Styles of Leadership.	15
5	Co-ordination and Control -- Co-ordination-Meaning-Definition-Requirements of effective co-ordination-Importance-Types of Co-ordination. Control: Meaning-Definition-Nature-Importance-Elements-Essentials of effective control-Basic control process -Control Technique-Traditional and Modern.	15

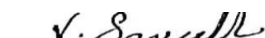
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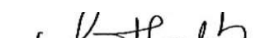
S. No	Title of the Book	Author	Year (Edn.)	Publication
1	Principles and Practice of Management	Prasad.L.M	2015 (9)	Sultan Chand and Sons, New Delhi
2	Principles of Management	Tripathi.P.C	2008 (4)	Tata MC Graw Hill Publishing Co, New Delhi
3	Principles of Business Organisation & Management	P.N.Reddy	2003(6)	Sultan Chand and Sons, New Delhi

Reference Books:

S. No	Title of the Book	Author	Year (Edn.)	Publication
1	Business Organization and Management	M.C.Shukla	2007 (18)	Sultan Chand & sons, New Delhi
2	Business Organization and Management	C.R.Pasu	2000 (1)	Tata Mcgrawhill, New Delhi


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SEMESTER II

Programme: UG	Subject: Commerce
Course code: 19UCOA21	Course Title: Marketing
Category: Allied 2	Credits: 4

Objectives:

1. To make the students to understand the basic marketing concepts.
2. To enable the students to develop skill in marketing strategies based on product, price, place and promotion objectives.

Outcomes:

1. Students can develop an idea about new marketing and its diverse functions.
2. Students may enhance their knowledge about the product planning and channels of distribution.
3. Students develop awareness about International marketing.

Units	Marketing	Hours
1	Introduction – Definition – Nature – Scope – Importance - Objectives –Functions - Types - Micro and Macro marketing – Modern marketing concepts – Marketing and economic development – Marketing Environment and systems – Consumer behavior – Marketing Research and Marketing information system.	18
2	Marketing Segmentation and Mix - Market segmentation –Concept – Methods of market segmentation – benefits – bases of market segmentation – Patterns of segmentation - Market targeting and positioning. Marketing mix - Meaning – Concepts of marketing mix – Modern marketing mix.	18
3	Product Planning – Meaning – Concept – Significance – Product modification -New Product Development –Steps – Marketing Myopia – Product line – Product Mix strategies – Product life cycle –Diversification – Elimination – Promotion-Meaning -Pricing Strategies	18
4	Promotion-Introduction-Promotional activities-Need for Promotional activities – Purpose – Importance – Objectives – Communication and Promotion – Promotional Mix and Strategies – Forms of Promotion – Relative cost.	18
5	Channels of distribution – Meaning – Importance - Types of channels – Selection of distribution channels- Important channel of distribution– Recent trends in marketing – Online marketing – Tele – Marketing – Service marketing.	18

Text Books:

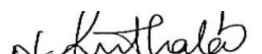
S. No	Title of the Book	Author	Year (Edn.)	Publication
1	Modern Marketing, Principles & Practices	R.S.N Pillai & Bhagavathi	2009 (4)	S. Chand & Co. Ltd., New Delhi.
2	Marketing Management	Gupta .R.C., Jain.T.C	2009 (1)	Alpha Publications, New Delhi
3	Marketing Management	Dr.C.B.Gupta and Dr.N.Rajan Nair	2008 (10)	S. Chand & Co. Ltd., New Delhi.

Reference Books:

S. No	Title of the Book	Author	Year (Edn.)	Publication
1	International Marketing	S.Yuvaraj	2004 (1)	Vrinda Publishers, New Delhi
2	Marketing	Dr.N.Rajan Nair, Nair Sanjeeth	2000 (7)	S. Chand & Co. Ltd., New Delhi.


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SEMESTER III

Programme: UG	Subject: Commerce
Course code: 19UCOC31	Course Title: Business Accounting
Category: Core 5	Credits: 4

Objectives:

1. To make the students to learn the system of Accounting followed in Branches and Departments of Business Organization.
2. To enable the students to know the pattern of recording transactions in Hire Purchase and Installment Purchase systems.

Unit	Detailed Syllabus	Outcomes	Hours
1	Branch and Departmental Accounting: Meaning – Objectives - Types of Branches - Dependent Branches - Accounting in respect of dependent branches - Debtors system – Invoice price Method (excluding Stock and Debtor’s system) – Departmental Accounts –Methods and Techniques - Departmental Trading - Profit and Loss Accounts - Inter Departmental Transfers.	The students can 1. able to learn the number of transactions occurred in the branch 2. able to find out the nature of expenses incurred in the branch and its requirement. 3. familiarize regarding the cash position of the branch	18
2	Royalty Account: Meaning – Treatment in final accounts - Technical terms - Specimen journal entries - Sub-lease - Meaning-Accounting - Specimen journal entries -Minimum rent - Short workings – Recoupment of short working – Strike - Sublease.	The students can 1. understand the meaning of the term “Royalty” 2. familiarize with terminology related to Royalty Accounting. 3. understand the Accounting treatment inthe books of Lessee and Lessor	18
3	Contract account: Meaning – Features – Types – Accounting Procedure - Work certified – Work Uncertified – Treatment of Profits – Work-in-progress.	The students can 1. be able to identify types of contract account 2. know to compute accounting procedure. 3. be able to find out work certified, work uncertified and work-in-progress.	18
4	Hire Purchase and Installment System: Meaning - Definition – Features - Difference between hire purchase and installment system- Calculation of Cash price and interest – Default and Repossession.	The students can 1. understand the difference between hire purchase and installment 2. be able to calculate the cash price and interest 3. know to prepare hire purchase account	18
5	Insolvency Accounts: Meaning - Insolvency Act - Procedure under insolvency act - Difference between insolvency of an individual and partnership - Difference between balance sheet and Statement of affairs - Insolvency of an individual – Statement of Affairs – Deficiency Account.	The students can 1. understand the procedure under Insolvency Act. 2. know the differences of insolvency ofan individual and partnership. 3. be able to prepare Statement of Affairsand Deficiency Account	18

Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Fundamentals of Advanced Accounting	R.S.N.Pillai, Bagavathi & S.Uma	2008 (2)	S.Chand & Company Ltd., New Delhi
2	Advanced Accounting	T.S.Reddy & A.Murthy	2011(6)	Margham Publications, Chennai

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Advanced Accountancy	Chandra Bose	2010 (1)	PHI Learning (P) Ltd, New Delhi.
2	Advanced Accountancy	Ravi Kishore	2014 (1)	Taxmann Allied Services (P) Ltd, New Delhi.
3	Advanced Accountancy	S.P.Jain&K.L.Narang	2017 (19)	Kalyani Publishers, New Delhi

*For Problem paper: 40% marks for theory and 60% marks for problems


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SEMESTER III

Programme: UG	Subject: Commerce
Course code: 19UCOC32	Course Title: Business Mathematics
Category: Core 6	Credits: 4

Objectives:

- 1. To provide the students with basic knowledge of mathematical techniques in number system and equation.
- 2. To enable the students to learn logical idea to find out practical solutions for the managerial problems.

Unit	Detailed Syllabus	Outcomes	Hours
1	Number Systems and Equations: Numbers-Natural - Whole – Rational - Irrational – Real. Equations – Linear - quadratic – Solutions of simultaneous linear equations with two or three unknowns – Solutions of quadratic equations - Nature of the roots – Forming quadratic equation.	The students can 1. understand fundamentals of Number systems and equations. 2. be able to do simultaneous linear equation. 3. be able to know solution of quadratic equations	15
2	Indices and Logarithms: Definition – Positive indices – Laws of indices – Negative indices – Zero and unity indices – Fractional indices. Logarithms – Definition – Properties of logarithms- Laws of logarithms-Common logarithm.	The students can 1. understand the fundamentals of Indices. 2. be able to do Negative Indices, Zero Indices and Unity Indices. 3. learn to solve Logarithms.	15
3	Analytical Geometry: Distance between two points in a plane-Slope of a straight line – Equation of straight line-Point of intersection of two lines – Applications - Demand and Supply - Cost-output - Break-even analysis.	The students can 1. be able to understand analytical geometry. 2. know about equation of straight line, point of intersection of two lines. 3. understand break even analysis.	15
4	Matrices: Meaning; – Types – Algebra of matrices – Addition and Subtraction – Scalar multiplication – Multiplication of matrices-Transpose of a matrix – Determinant – Minors and co-factors –Inverse of a matrix – Solving simultaneous linear equations using matrix method.	The students can 1. understand the fundamentals of Matrices. 2. be able to do transpose of matrix. 3. be able to solve simultaneous linear equations using matrix method.	15
5	Commercial Arithmetic: Simple interest – Compound interest – Depreciation. Discount – Trade discount – Discounting of Bill of exchange -Banker’s discount – Banker’s Gain.	The students can 1. understand the simple interest and compound interest. 2. understand the treatment of discount. 3. be able to solve discounting of bill of exchange.	15

Text Books:

S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Business Mathematics	D.S. Sancheti	2016 (1)	Sultan Chand &Co., New Delhi.
2	Business Mathematics	S.P.Rajagopalan	2014 (2)	Vijay Nichole Imprints (P) Ltd, Chandigar.

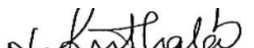
Reference Books

S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Business Mathematics	Mangaldoss.A.Joseph, Henry Mercy	2000 (1)	Perci Publication,Tirunelveli.
2	Business Mathematics	V.S. Soundra Pandian	2002 (1)	Soundar Publication, Kovilpatti.
3	Business Mathematics	Manoharan.M., C.Ilango	2002 (2)	Palani Paramount Publications, Palani

*For Problem paper: 40% marks for theory and 60% marks for problems


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SEMESTER III

Programme: UG	Subject: Commerce
Course code: 19UCOC33	Course Title: Banking Theory, Law and Practice
Category: Core 7	Credits: 4

Objectives:

1.
- To equip the students with an idea of modern banking.
2.
- To familiarise the students with the banking activities.

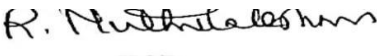
Unit	Detailed Syllabus	Outcomes	Hours
1	Banking System: Banking Regulation Act, 1949 – Definition – Major Provisions - Indigenous Bankers – Commercial Banks- Functions – Kinds - Co-Operative Banks – Regional Rural Bank – Public Sector Bank - Private Sector Bank - Land development Banks – Industrial Development Banks – NABARD - EXIM Banks – Foreign Exchange Banks. Banker and Customer: Relationship between banker and customer – General & Special relationship –Rights of the banker.	The students can 1. develop the capability of knowing banking concepts and operations. 2. be aware of various banks and relationship of banker. 3. get thorough knowledge of NABARD and other banks for raising funds.	15
2	Traditional Banking: Acceptance of Public Deposit – General Precautions – Kinds of deposits – Fixed – Current – Saving – Recurring & Others. Lending Loans & Advances – Principles of sound lending – Forms of advances – Loan, Cash credit, Over draft, Purchasing and Discounting of bills - Mode of charging security.	The students can 1. be enlightened regarding traditional banking process. 2. understand various kinds of deposit. 3. learn about lending loan and advances from banks.	15
3	Modernised Banking: Core banking – Retail banking – Internet banking – Online banking and Offline banking – Mobile banking – Electronic Funds Transfer ATM and Debit Card – Smart Card – Credit Card – E-Cash – Swift – RTGS - NEFT.	The students can 1. understand about core banks, home banks, retail banks. 2. learn about online banking, offline banking. 3. be aware of the usage of debitcard, credit card, E-cash.	15
4	Negotiable instruments: Definition – Features – Kinds - Promissory note, Bill of exchange and Cheque Meaning – Drawing of the cheque – Crossing – Meaning - Types – Endorsement Meaning - Kinds – Material alternation.	The students can 1. acquaint the students with the fundamentals of banking. 2. be able to know the Negotiable instrument. 3. understand the drawing of cheques and endorsement details.	15
5	Reserve Bank of India: Management of RBI - Reserve Bank and Agricultural credit - Nationalisation – Objectives - Legal framework – Functions of Reserve Bank of India - Methods of Credit Control.	The students can 1. understand the operation of RBI. 2. be able to know the methods of credit control. 3. recognize the Banking rules and major provisions	15

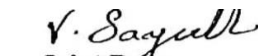
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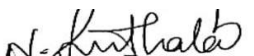
S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Banking Theory Law and Practice	E.Gordon and K. Natarajan	2009 (22)	Himalaya Publishing House
2	Banking	S.M.Sundaram	2012 (9)	Meenakshi Publishers, Madurai

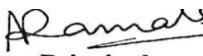
Reference Books

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Money and Banking	Dr.Srinivaasan	2013 (1)	Meenakshi Publishers, Madurai
2	Money and Banking	Sinha.N.C	2012 (1)	BSC Publishers New Delhi
3	International Banking	Parameswaran R & Natarajan.N.	2001 (1)	Sultan Chand & Sons, New Delhi


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Sri Sarada College for Women (Autonomous), Tirunelveli 627011Reaccredited with “A” grade by NAAC
SEMESTER III

Programme: UG	Subject: Commerce
Course code: 19UCOC34	Course Title: Computer Application in Business
Category: Core 8	Credits: 4

Objectives:

1.
- To make the students to learn the application software.
2.
- To enable the students to know the use of Ms Office.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction to Microsoft Office: MS Word – Creating and Editing Documents – Menus, Commands, Toolbars and Icons – Formatting Document - Inserting pictures – Mail Merge.	The students can 1. be able to create a word document. 2. be able to edit and create mail merge 3. familiarize regarding the tools and icons	18
2	Ms-Excel: Spreadsheet Overview – Menus, Toolbars, Icons – Creating Worksheets – Editingand Formatting – Excel Formulas and Functions - Creating a Chart Data Forms, Sorts, Filter-Saving a work book.	The students can 1. be able to work with excel sheet. 2. familiarize with editing and formattingthe sheet. 3. understand the formula and functions.	18
3	Creation of Tables: Insert - Add rows and columns – Charts - Types- Formatting Charts –Printing - Page orientation - Page breaks - Printarea – Margins – Titles – Headers - Footers – Scaling - Sheet options.	The students can 1. be able to create a table. 2. be able to print the document. 3. be able to insert header and footer.	18
4	MS Power Point: Introduction – Menus – Toolbars – Text and Formats – Animations –Arts and Sound – Making the Presentation templates.	The students can 1. be able to prepare power point presentation. 2. learn to add arts and sound in slide. 3. be able to prepare template for slide.	18
5	Ms-Access: Database Overview – Creating A Database – Modifying Tables And Creating Forms – Query – Creating Reports – Mailing Labels.	The students can 1. learn to create a database. 2. be able to create a table and modify. 3. be able to create forms and report	18

Text Books:

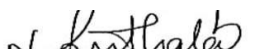
S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Microsoft Office 2010	Bittu Kumar	2015 (1)	V&S Publishers, New Delhi.
2	MS Office 2000 For Every One	Sanjay Saxena	2010 (1)	Vikas Publishing House Pvt. Ltd, New Delhi.

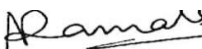
Reference Books

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Microsoft Office 2010 Step by Step	Joyce Cox, Joan Lambert & Curtis Frye	2011 (1)	Microsoft Press, Washington.
2	MS Office 2000 Professional Fast & Easy	Faithe Wempen	2017 (3)	BPB Publications, New Delhi
3	Microsoft Office 2016 Step by Step	Joan Lambert & Curtis Frye	2015 (1)	Microsoft Press, Washington.


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SEMESTER III

Programme: UG	Subject: Commerce
Course code: 19UCOA31	Course Title: Business Communication
Category: Allied 3	Credits: 3

Objectives:

1.
- To equip the students effectively to acquire skills in reading, writing, comprehension and communication.
2.
- To make the students to use electronic media for business communication.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Meaning – Definition – Objectives - Process - Nature and Importance of communication – Types of communication (Verbal & Non Verbal) – Seven C’s of Business Communication - Barriers to communication.	The students can 1. be able to know the importance of communication. 2. understand the types of communication. 3. learn the barriers of communication.	9
2	Business Correspondence: Mechanics in writing - Essentials of business letter - Structure of business letters - Specimen of business letter - Letter Writing - Quotations - Orders - Tenders - Sales Letters - Claims and Adjustment Letters.	The students can 1. develop the capability of writing various business letters. 2. learn the principles of writing letter. 3. get knowledge of preparing order, tenders, sales letter and claims.	9
3	Job Related Communication: Communication skill – Meaning – Definition – Communication skills of sending Communication - Drafting the Letter of application - Elements - Structure of Application - Models of Application letter – Letter of Interview - Letter intimating the appointment - Qualities of Good Communication.	The students can 1. learn to draft the application and resume preparation. 2. understand various models of letter. 3. be able to build-up their communication skill.	9
4	Company Correspondence: Company meetings – Valid Meetings - Kinds of Company meetings - Specimen - Minutes of all types of Company meeting – Notice.	The students can 1. be able to know various kinds of company meeting. 2. learn to prepare audit report. 3. Gain knowledge to expose their talent in interviews.	9
5	Technology and Business Communication: Role and Effectiveness Business Communication - Strategy - Importance of E-Communication – Email, Text Messaging - Instant Messaging – Modern Techniques like Video Conferencing, Social Networking – Recent Technologies.	The students can 1. learn to use effective technology in business communication. 2. be able to send Email, text messaging, instant messaging. 3. able to use video conference, social network for communication.	9

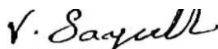
Text Books:

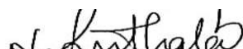
S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Business Communication and Customer Relations	R.K.Madhukar	2003 (1)	Vikas Publishing House (P) Ltd, New Delhi
2	Business Communication	J.Shanmuganathan	2004 (1)	J.J.Publishers, Madurai

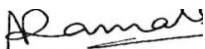
Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Business Communication	K.K.Sinha	2003 (1)	Galgotia Publishers, New Delhi
2	Business Communication	Rajendra Pal, Korlahalli.J.S.	2003 (10)	Sulthan Chand & Sons, New Delhi
3	Business Communication	Kumar, Pradeep	2000 (1)	Kedarnath Ramnath, Meerut


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SEMESTER III

Programme: UG	Subject: Commerce
Course code: 19UNCO3A	Course Title: Principles of Accountancy
Category: NME	Credits: 2

Objectives:

1.
- To enable the students to prepare and provide accounting information to the interested parties.
2.
- To enhance the students with the knowledge of fundamental and technical concepts of accounting.

Unit	Detailed Syllabus	Outcomes	Hours
1	Accounting: Meaning – Definition – Functions – Advantages – Limitations of Book-Keeping - Difference between Accounting and Book-Keeping –Accounting Principles – Concepts and Conventions – Single Entry System Vs Double Entry System.	The students can 1. get knowledge of various accounting concepts. 2. learn principles of accountancy. 3. gain the knowledge about accounting procedures, methods and techniques.	6
2	Journal: Meaning-Rules for Debit and Credit - Procedure of journalizing - Compound Journal Entry – Advantages.	The students can 1. learn Golden rules of accountancy. 2. be able to enter journal entries. 3. understand the usage of cash book, purchase book and sales book.	6
3	Ledger: Features of Ledger Accounts – Difference between Journal and Ledger – Ledger Posting – Preparation of Ledger Accounts.	The students can 1. understand the features of ledger account. 2. learn the posting of transactions in ledger. 3. be able to prepare ledger account.	6
4	Trial Balance: Meaning – Definition – Features – Objectives – Preparation of Trial Balance.	The students can 1. understand the features of Trial balance. 2. learn to prepare trial balance. 3. be able to identify the errors.	6
5	Final Accounts: Trading account – Advantages - Profit and loss account – Advantages - Balance Sheet. (Simple Problem).	The students can 1. learn to post individual items in Trading account. 2. be able to prepare Profit and loss account. 3. gain knowledge of preparing Balance sheet.	6

Text Books:

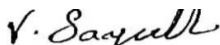
S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Financial Accountancy	T.S.Reddy & A.Murthy	2011 (6)	Margham Publications, Chennai
2	Advanced Accountancy	S.P.Jain & K.L.Narang	2012 (18)	Kalyani Publishers, New Delhi

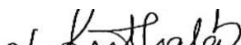
Reference Books:

S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Fundamentals of Advanced Accounting	R.S.N.Pillai, Bagavathi & S.Uma	2009 (3)	S.Chand & Company Ltd., New Delhi
2	Financial Accounting	Dr.T.Ramasamy	2012 (2)	Gold Books Publishing House, Virudhunagar.
3	Introduction to Accountancy	T.S.Grewal & S.C.Gupta	2008 (8)	S.Chand & Company Ltd., New Delhi

*For Problem paper: 40% marks for theory and 60% marks for problems


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SEMESTER III

Programme: UG	Subject: Commerce
Course code: 19UNCO3B	Course Title: Consumer Awareness
Category: NME	Credits: 2

Objectives:

1.
- To create awareness regarding the intellectual property rights and consumer protection.
2.
- To avail the knowledge of better quality of living as consumers.

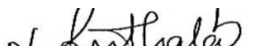
Units	Syllabus	Outcomes	Hours
1	Consumer -Consumerism-Types of consumers (age, sex, behaviour, place of residence, income) – objectives -Goods and services- types- evolution and growth of consumer movement in India and Tamil Nadu.	The students can understand, 1. The types ofconsumers 2. The evolution and growth of consumer movement in India 3. The concept ofconsumerism.	6
2	Exploitation of consumer -Pricing, adulteration, information and labeling, duplication, artificial demand, Spurious goods, late deliveries, advertising, poor after sales service, warranty and services, fitness, not honouring terms and conditions, for sale and services, financial frauds, credit card frauds and product risks and remedies.	The students can get awareness regarding, 1. The terms and condition of after saleservices. 2. The exploitation of consumers. 3. The credit cardfrauds.	6
3	Consumer Rights -Meaning and sources-Six rights of the consumers under Consumer Protection Act-Right to Safety-Information-Choice, be heard, Redressal and consumer education-Consumer Responsibility.	The students can acquire knowledge on, 1. Consumerrights. 2. The provisions relating to SafetyAct. 3. Redressal and consumer education.	6
4	Consumer protection -Meaning-Need for consumer protection--Legal measures- Consumer Protection Act 1986– objectives -Special features of the Act-Three tier features of the Act-Three tier Redressal Agencies- District level, State level and National level. Consumer Protection (Amendment) Act 2003.	The students can get awareness on, 1.The special features of the Consumer Protection Act 1986. 2. The penalties in consumer protection act 1986. 3. The functions of three tier redressalagencies.	6
5	Procedures for complaints and Redressal Mechanism: Persons who can file a complaint - Period of limitation for filling a complaint - Procedure for filling a complaint -Model form of complaint - Model form of Appeal -with reference to goods andservices- Consumer related cases.	The students can learn, 1. The model form of complaints. 2. The procedure for filling a complaint. 3. The model form of appeal with referenceto goods and services.	6

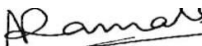
Text Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	OrganisationalBehaviour	Prasad.L.M	1984 (1), Reprint 2008	Sultand Chand publications
2	Consumer Protection and Satisfaction (Legal and Managerial Dimension)	Gulshan.S.S	2009 (4)	Caney Easting Limited, England
3	Consumer Behaviour and Marketing Strategy	PaulPeter.J JerryOlson	2002 (4)	Tata McGraw Hill, Chennai


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SEMESTER III

Programme: UG	Subject: Commerce
Course code: 19UCOS31	Course Title: Entrepreneurship Development
Category: Skill Based 1	Credits: 4

Objectives:

1.
- To enable the students to develop and strengthen the entrepreneurial quality.
2.
- To make the students to know the sources of help and support available for starting a small-scale Industry.

Unit	Detailed Syllabus	Outcomes	Hours
1	Entrepreneurship: Introduction -Evolution – Characteristics – Types - Functions of Entrepreneurs – Qualities of Successful Entrepreneurs – Entrepreneur Vs Entrepreneurship – Entrepreneur Vs Intrapreneur – Growth of Entrepreneurship in India.	The students can 1. be able to understand the characteristics, types and functions of entrepreneurs 2. be able to understand the qualities of successful entrepreneurs. 3. understand the growth of entrepreneurship in India.	12
2	Entrepreneurship Dimensions: Entrepreneurial Culture – Entrepreneurial Society – Entrepreneurship Development – Women Entrepreneurship - Problems - Rural Entrepreneurship – Financial Support – Economic Appraisal - Technological Competence.	The students can 1. be able to learn entrepreneurial culture. 2. learn about the training and other supportive organization services. 3. understand women entrepreneurship and rural entrepreneurship.	12
3	Project Appraisal: Introduction – Meaning – Methods of Project Appraisal – Cash flows as cost benefits - Payback period – Average rate of return.	The students can 1. able to learn about the methods of project appraisal. 2. understand about payback period and average rate of return. 3. able to know the technological competence.	12
4	Launching of New Business: Step by Step Approach for searching New Business – Pre-launch – Launch – Post-launch – Entrepreneur to Enterprise – Stage of Start Up and Scale Up – List of Organisations to be Contacted.	The students can 1. understand the step by step approach for searching new business. 2. able to know about post launch, pre launch and entrepreneur to enterprise. 3. able to know stage of start-up and scale-up.	12
5	Entrepreneurial Institutions: Role of Banks, NSIC, TIIC, SIPCOT, KVIC, DIC, NABARD – functions – Incentives and Subsidies – Support of Central Government - Support of State Government - Special Schemes – IRDP, PMEGP, MUDRA and Start up India.	The students can 1. able to know about monitoring and evaluation of business. 2. understand rehabilitation of business Unit. 3. able to know method of positioning a product in marketing and branding of product.	12

Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Entrepreneurial Development	Khanka S.S	2011 (1)	Sulthan Chand & Sons, New Delhi
2	Entrepreneurial Development	Gupta C.B.	2015 (1)	Sulthan Chand & Sons, New Delhi

Reference Books

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Entrepreneurial Development	E.Gordon	2013 (1)	Himalaya Publishing House, Mumbai.
2	Dynamics of Entrepreneurial Development & Management	Vasant Desai	2012 (5)	Himalaya Publishing House, New Delhi
3	Entrepreneurial Development	Anil Kumar S.	2003 (1)	New Age International Publication, New Delhi.

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SEMESTER IV

Programme: UG	Subject: Commerce
Course code: 19UCOC41	Course Title: Partnership Accounting
Category: Core 9	Credits: 4

Objectives:

- 1. To enable the students to understand the nature and system of accounting followed in Partnership firm.
- 2. To make the students to learn the procedures to be followed at the time of Admission, Retirement and Deathof a partner in a partnership business.

Unit	Detailed Syllabus	Outcomes	Hours
1	Partnership Accounts: Fundamentals Partnership Deed - Necessary Adjustment Interest on Capital - Interest on Drawing Interest on Loans - Partners Salary and Commission – Profit & Loss Appropriation Capital Account - Fixed Capital Method Fluctuating - Past Adjustments and Guarantee.	The students can 1. understand fundamentals of partnership deed. 2. able to do various partnership adjustment accounts. 3. able to know Fixed capital method, fluctuating, past adjustment and guarantee.	18
2	Admission of a Partner: Adjustment in Profit Sharing Ratio - Calculation of Sacrificing Ratio - Kinds of Goodwill – Methods of valuation of goodwill - Simple and Weighted Average Treatment of Goodwill in Admission Revaluation Account – Adjustment regarding Goodwill – Adjustment regarding Capital.	The students can 1. easily understand adjustment in profit sharing ratio. 2. able to do methods of valuation of goodwill. 3. Able to prepare adjustment regarding goodwill and adjustment regarding capital.	18
3	Retirement or Death of a Partner: Profit Sharing Ratio - Gaining ratio -Sacrificing Vs Gaining Ratio - Treatment of Goodwill in Retirement - Adjustment of Capital Memorandum Revaluation Account - Retirement and Death of Partner – Retiring Partner’s loan Joint life policy.	The students can 1. be able to understand profit sharing ratio and gaining ratio 2. know about treatment of Goodwill in retirement. 3. understand joint life policy after retirement and death of partner.	18
4	Dissolution of partnership: Meaning-Modes- Accounting treatment - Journal entries Treatment of Goodwill in dissolution - Piecemeal Distribution - Proportionate capital method Maximum loss method - Accounting Procedure Insolvency of a partner, two partners and all partners – Garner vs. Murray rule.	The students can 1. understand treatment of goodwill in dissolution of partnership 2. able to do proportionate capital method and maximum loss method. 3. be able to know about insolvency of a partner, two partners and allpartners.	18
5	Amalgamation of firms: Introduction – Meaning – Objectives - Benefits – Forms of amalgamation - Problems or issues in amalgamation-Accounting treatment in the books of amalgamating firms Revaluation of assets and liabilities - Transfer of Profits and loss - Disposal of assets and liabilities.	The students can 1. understand the procedure for amalgamation. 2. Learn the treatment of Revaluationof assets and liabilities. 3. be able to do gradual realisation of assets.	18

Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Financial Accountancy	T.S.Reddy & A.Murthy	2011 (6)	Margham Publications, Chennai
2	Advanced Accountancy	S.P.Jain & K.L.Narang	2017 (19)	Kalyani Publishers, New Delhi

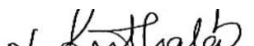
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S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Fundamentals of Advanced Accounting	R.S.N.Pillai, Bagavathi & S.Uma	2008 (2)	S.Chand & Company Ltd., New Delhi
2	Advanced Accountancy	Ravi Kishore	2014 (1)	Taxmann Allied Services (p) Ltd, New Delhi.
3	Advanced Accountancy	Chandra Bose	2010 (1)	PHI Learning (P) Ltd, New Delhi.

*For Problem paper: 40% marks for theory and 60% marks for problems


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SEMESTER IV

Programme: UG	Subject: Commerce
Course code: 19UCOC42	Course Title: Business Statistics
Category: Core 10	Credits: 4

- Objectives:**
- 1. To provide the students with basic knowledge of statistical techniques as are applicable to business.
 - 2. To enable the students to apply statistical techniques for quantification of data in business.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Meaning – Definition – Importance – Application – Limitations of Statistics. Statistical survey – Planning and design of survey. Collection of Data – Sources- Primary and secondary data – Techniques – Census method and sampling method–Methods of sampling. Classification and tabulation of data – Diagrammatic and graphic presentation of data.	The students can 1. be able to know the importance, limitations of statistics 2. learn to collect the data 3. understand the uses of classification, tabulation, diagrammatic and graphic presentation of data	15
2	Measures of Central Tendency: Meaning – Definition – Functions - Mean – Merits - Demerits - Median - Merits - Demerits – Mode – Merits - Demerits – Geometric Mean – Merits - Demerits – Harmonic Mean – Merits - Demerits.	The students can 1. learn to find average of arithmetic mean. 2. learn to compute median and mode. 3. be able to compute harmonicand geometric mean.	15
3	Measures of Dispersion and Skewness: Meaning - Definition - Methods of Dispersion - Range - Quartile Deviation – Mean Deviation - Standard Deviation – Co-efficient of Variation. Skewness - Methods of Skewness - Karl Pearson’s Co-efficient of Skewness – Bowley’s Co-efficient of Skewness.	The students can 1. know to calculate mean and standard deviation. 2. be able to compute skewness. 3. apply Bowley’s co-efficient of skewness.	15
4	Correlation and Regression: Meaning – Types - Scatter Diagram – Karl Pearson’s Co-efficient of Correlation - Rank Correlation – Concurrent Deviation Method. Regression Analysis – Uses - Regression Line – Regression Equations – Least Square Method - Deviations taken from actual mean and assumed mean method.	The students can 1. understand the concept of correlation and regression. 2. be able to calculate correlation. 3. be able to solve regression analysis	15
5	Index Numbers and Analysis of Time Series: Meaning – Types - Problems – Methods of Constructing Index Numbers – Weighted and Unweighted Indices – Index Number Tests – Consumer Price Index Numbers. Analysis of Time Series – Meaning – Importance – Components of Time Series – Secular trend, Seasonal, Cyclical and Irregular Variations – Measurement of Trend - Graphic method -Semi Average Method – Moving Average Method – Method of Least Square.	The students can 1. know the idea of index number and time series 2. know to compute consumer price index number. 3. understand the concept of Secular trend, seasonal, cyclical and irregular variations.	15

Text Books:

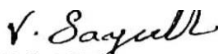
S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Statistics-Theory and Practice	R.S.N. Pillai & Bhagavathi	2009 (7)	S.Chand &Co, New Delhi
2	Business Statistics	Dr. S.P. Gupta, M.B.Gupta	2001 (1)	Sultan Chand & Sons, New Delhi

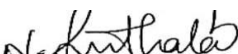
Reference Books

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Business Statistics	C.V.Shennoy, V.K.Srivatsav, S.C.Sharma	2001 (1)	New Age International (P) Ltd,New Delhi
2	Statistics for Business and Economics	J.S.Chandran	2002 (1)	Vikas Publishers, New Delhi
3	Business Statistics	C.G. Berry	2005 (2)	Tata Mcgrawhill, New Delhi

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SEMESTER IV

Programme: UG	Subject: Commerce
Course code: 19UCOC43	Course Title: Human Resource Management
Category: Core 11	Credits: 4

Objectives:

1.
- To make the students learn about the importance of human resource.
2.
- To enable the students to know the techniques of performance appraisal of employees.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Meaning - Definition - Personnel Management and HRM, Comparison -Strategic - Role - Qualities of HR Manager - Objectives – Characteristics of HRM – Functions – Principles – Need for HRM - Organisational Structure.	The students can 1. understand the concept of HRM and its relevance in the organizations. 2. be able to know about the knowledge of HR concept to take correct businessdecisions. 3. be able to analyze the strategic issues and strategies required to develop man power resource.	15
2	Recruitment: Concept – Policy - Recruitment Process - Recruitment Planning - Sources of Recruitment – Internal – External - Factors affecting Recruitment - Methods of Contacting Sources – Selection – Process - Selection Test.	The students can 1. be able to understand the Recruitment concepts. 2. understand the recruitment planning and its sources. 3. have a clear idea about methods of selection.	15
3	Employee’s Training: Concept - Role of Training and Development –Assessing Training Needs - Model for Training -Organizing Training and Development Programme – Importance – Principles – Training Methods – Promotion - Types – Demotion – Labour Turnover – Performance Appraisal Methods - Evaluation of Training Needs.	The students can 1. understand the concept of Employees Training. 2. learn about the various training and Promotion methods. 3. be able to know the various appraisal methods.	15
4	Human Resource Planning: Meaning - Objectives – Need – Process - Problems – Job Analysis – Job Description – Job Specification - Meaning – Process - Techniques of Design.	The students can 1. be able to understand the Human Resource Planning. 2. learn about the Forecasting of Human Resource Supply. 3. have a clear idea about job design and job analysis.	15
5	Workers participation and Industrial Relations: Collective Bargaining – Employee’s grievances. Industrial relations: Significance – Causes of Poor Industrial Relations – Suggestions –Labour Disputes and Settlement - Trade Union – Meaning – Types – Multiple Role.	The students can 1. understand the collective bargaining and industrial relation. 2. understand the employee grievances. 3. Be able to know about industrial disputes and settlement.	15

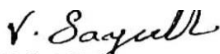
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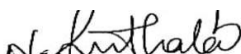
S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Human Resource Management	Aswathappa	2014 (7)	Tata Mc Graw Hill, New Delhi.
2	Human Resource Management	L.M.Prasad	2015 (2)	Sulthan Chand &Sons, New Delhi

Reference Books

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Human Resource Management	Bhattanayak, Biswajwet	2006 (1)	Prentice Hall of India, New Delhi.
2	Principles of Human Resource Management	T.Eugine	2013 (1)	Vrinda Publications, New Delhi
3	Human Resource Management	Batra G.S, Dangwal R.C.	2001 (1)	Deep & Deep Publication, New Delhi.


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Sri Sarada College for Women (Autonomous), Tirunelveli 627011Reaccredited with “A” grade by NAAC
SEMESTER IV

Programme: UG	Subject: Commerce
Course code: 19UCOC44	Course Title: Office Management
Category: Core 12	Credits: 4

Objectives:

1. Students can understand the meaning and importance of office and office management
2. To make the students to get an idea in office management systems

Unit	Detailed Syllabus	Outcomes	Hours
1	Office: Meaning – Features – Importance – Functions - Basic Functions - Administrative Functions - Activities of a Modern Office - Office Management - Meaning – Elements -Office Manager – Functions – Qualifications – Training Responsibilities - Office Organization – Principles - Types of Office Organization.	The students can 1. identify about the importance and features of office. 2. understand the modern office activities. 3. Be able to know the principles of office management and organizations.	15
2	Office Accommodation: Importance-Location of a Office Building - Choice of Location - Owned, Rented or Leased Accommodation - Size and Shape of Office Accommodation - Office Layout -Meaning and Importance - Objectives of Office Layout Principles - Open Offices - Private Offices - Advantages - Disadvantages -Planning of Office Layout.	The students can 1. Be able to understand the office location. 2. understand about the importance of owned, private and size of office accommodation. 3. understand about layout of the private and open offices.	15
3	Mail and Correspondence: Production of Correspondence-Centralised Correspondence Departmental Correspondence - Typing and duplicating- Departmental typing and typing pool - Mail services – Organisation of mailing department - Centralisation of mail handling work - Handling inwards mail – Handling outwards mail.	The students can 1. able to understand the mailing and correspondence concepts. 2. understood the concepts handling of inwards and outwards mail. 3. a clear idea of the production of correspondence.	15
4	Indexing: Types of Index – Visible card index – Loose-leaf binders – Guides and signals Collection, Recording and Presentation of Data Office report – Collection of Data – Limitation of Statistical data – Sources of data – Methods of collecting data – Techniques of data collection – Presentation of data – Tabulation – Charts and diagrams.	The students can 1. easily understand the Indexing types, guides and signals. 2. understood the collection and presentation of statistical data. 3. Have clear idea about tabulation carts and diagrams.	15
5	Filing: Paperwork in the modern office- data processing – Record management-Filing- Essentials of good filing systems – Classification and arrangement of files – Filing methods – Centralised Vs Decentralised filing - Forms management and Control – Office forms – Forms control – Forms design – Specimens – Forms Sets.	The students can 1. have good knowledge of filing methods and it’s essential. 2. learn about arrangement s of good filing. 3. Be able to know the forms management control and continuous stationery.	15

Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Office Management	V.Kathiresan, Dr.Radha	2004 (1)	Prasanna Publishers, Chennai
2	Office Management	J.C.Denver, Josephine Shaw	2003 (5)	London English Language Book Society,London

Reference Books

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Commercial Correspondenceand Office Management	R.S.N.Pillai, Bagavathy	2001 (1)	Scitech Publishers, Chennai
2	Secretarial Practice and office Management	M.C.Kuchal	2004 (1)	Sultan Chand & Sons, New Delhi
3	Office Management	Prasanta K.Ghosh	2003 (11)	Sultan Chand & Sons, New Delhi


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SEMESTER IV

Programme: UG	Subject: Commerce
Course code: 19UCOA41	Course Title: E-Commerce
Category: Allied 4	Credits: 3

Objectives:

1.
- To enable the students to know the applications of E-commerce.
2.
- To enable the students to learn about online Trading.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Definition – Nature – Scope – Issues in Implementing E-Commerce –Tradition Commerce Vs E-Commerce – E- Commerce Frame Work- Advantages – Disadvantages- Technologies of E-Commerce – Encryption- Decryption- E- Business- Characteristics of E – Business- Distinction between E-Commerce and E-Business.	The students can 1. be able to know the concept of E-Commerce. 2. have knowledge about the E-Business. 3. be able to analyze the distinction between E-Commerce and E-Business.	9
2	Networks: Overview of Communication Network – Communication Processor – Communication Media – Communication Satellites – Computer Network – Types of Network- Wireless Network – Wireless Internet Access – ISDN - Dial-up - Broadband – Wi-Fi.	The students can 1. be able to understand the Overview of communication Networks. 2. be able to know about the types of network. 3. have a clear idea about WI-FI.	9
3	Electronic Data Interchange: How EDI works – Basics of EDI - Layered Architecture of EDI - Components –Advantages - Disadvantages - VANS- Non-EDI system - Partial EDI System - Fully Integrated EDI System – Pre-requisites of EDI – EDIVs - E- mail.	The students can 1. understand the Basics of EDI. 2. be known about the Components advantages and disadvantages of EDI. 3. be able to know the EDI Vs E-mail.	9
4	Consumer oriented E-Commerce Applications: Mercantile Process Model – Consumers Perspective - Merchant’sPerspective - Electronic Payment Systems: Advantages – Risk - Types of Payment system (Credit cards, E-Cash, Smart Cards, Debit Card).	The students can 1. be able to understand the consumer oriented E-commerce Application. 2. understand the Mercantile Process Model. 4. have a clear idea about ElectronicPayment Systems and its types.	9
5	E - Marketing techniques: Meaning Applications of 7 P’s (Product, Price, Place, Promotion, Personalization, Physical Evidence, Process) E-Advertising Techniques: Banners, Sponsorships, Portals - Online coupons.	The students can 1. easily understand the E- Marketing techniques. 2. understand the Applications of 5 P’s. 3. be able to know about E-Advertising Techniques.	9

Text Books:

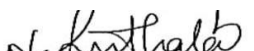
S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	E-Business and E- Commerce	Dr.P.Rizwan Ahmed	2015 (1)	Margham Publications, Chennai
2	E-Commerce	S.Pankaj	2010 (1)	APH Publishing Corporation, New Delhi

Reference Books

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	E- commerce: An Indian Perspective	P.J.Joseph S.J	2012 (4)	PHI Learning (P) Ltd, New Delhi
2	E-Commerce Strategy, Technologies and Applications	David Whiteley	2010 (1)	Tata Mc Graw – Hill Publishing Co. Ltd, New Delhi
3	Electronic Commerce	Ravi Kalakota, Andrew B. Whinsdon	2011 (10)	Dorling Kinderley India (P) Ltd,New Delhi


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SEMESTER IV

Programme: UG	Subject: Commerce
Course code: 19UNCO4A	Course Title: Financial Accounting
Category: NME	Credits: 2

Objectives:

- 1. To make the students learn about the concept and role of Accounting and financialreporting in the modern marketing economy.
- 2. To enable the students to learn the regulatory frame work for the operation of fundamental accounting.

Unit	Detailed Syllabus	Outcomes	Hours
1	Average Due Date: Meaning – Definition – Objectives - Basic types of problem-Determination of Due Date – Calculation of Interest- Utility of Average Due Date.	The students can 1. understand fundamentals of AverageDue Date. 2. be able to do Basic types of problems in Average due date. 3. be able to know Determination of due date and Calculation of Interest.	6
2	Bank Reconciliation Statement: Meaning - Causes of difference between balance as per cash book and pass book – Need of Bank Reconciliation Statement – Preparation of Bank Reconciliation Statement- Adjustments in cashbook	The students can 1. easily understand Bank Reconciliation Statement. 2. be able to do Preparation of Bank Reconciliation Statement. 3. be able to preparation of adjustment in cash book.	6
3	Insurance Claim: Meaning – Loss of Stock – Loss of Profit – Difference between loss of stock policy & loss of profit policy – Steps to be followed to ascertain Claim – Calculation of Actual Claim.	The students can 1. be able to understand the procedure of insurance claim. 2. be able to know about stock policy and profit policy. 3. be able to calculate the insurance claim amount.	6
4	Voyage Account: Meaning – Importantterms – Bunker cost – Port charges – Primage – Passage Money – Stevedoring charge – Incomplete voyage – Completed voyage method.	The students can 1. understand the essentials of voyage account. 2. be able to know the terms of voyage. 3. be able to do Voyage account.	6
5	Hire Purchase and Installment System: Hire Purchase - Meaning – Features – Hire purchase Vs Sales – Installment system – Meaning – Hire purchase Vs Installment – Purchase system – Methods of calculating interest – Treatment towards default in installment payment – Complete Possession – Partial Possession.	The students can 1. understand the features of Hire Purchase. 2. be able to know installment system. 3. be able to know the treatment of hire purchase.	6

Text Books:

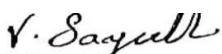
S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Financial Accountancy	T.S.Reddy & A.Murthy	2011(6)	Margham Publications, Chennai
2	Advanced Accountancy	S.P.Jain & K.L.Narang	2012 (18)	Kalyani Publishers, New Delhi

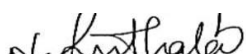
Reference Books

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Fundamentals of Advanced Accounting	R.S.N.Pillai, Bagavathi & S.Uma	2009 (3)	S.Chand & Company Ltd., New Delhi
2	Financial Accounting	Dr.T.Ramasamy	2012 (2)	Gold Books Publishing House, Virudhunagar.
3	Introduction to Accountancy	T.S.Grewal & S.C.Gupta	2008 (8)	S.Chand & Company Ltd., New Delhi

*For Problem paper: 40% marks for theory and 60% marks for problems


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SEMESTER IV

Programme: UG	Subject: Commerce
Course code: 19UNCO4B	Course Title: Human Rights
Category: NME	Credits: 2

Objectives:

1.
- To make the students to understand the basic concepts of human rights.
2.
- To enable the students to learn about the relationship between individual, group and national rights.

Unit	Detailed Syllabus	Outcomes	Hours
1	Human Rights: Definition – History - Right to Information Act, 2005 - International Human Rights Law - Scope - Characteristics - Kinds - Civil and Political – Social, Economic and Cultural Rights.	The students can 1. understand the History of Human Rights. 2. learn about the knowledge of International Human Rights Law. 3. be able to know the Kinds of Human Rights.	6
2	Rights of the Disabled Persons: International year of disabled persons 1981 - Women Rights – Women Status - Women Constitutional Rights - Women Rights and Indian Penal Code.	The students can 1. be able to understand the Rights of the Disabled Persons. 2. understand the Declaration on the rights of disabled persons 1975 3. have a clear idea about Women Rights and Indian Penal Code.	6
3	Rights of Bonded Labour: Concepts and definitions - Constitutional and legal provisions - Salient features of bonded labour system (abolition) Act 1976 - Role of the National Human Rights Commission- Bonded Labour in India.	The students can 1. understand the Salient features of bonded labour system (abolition) Act 1976 2. be able to know about the Role of the National Human Rights Commission. 3. be able to know the Bonded Labour in India – Capital Punishment	6
4	Violation of Human Rights: Patterns of Violations and Abuses - Action against Violation of Human Rights as per Indian law - Human Rights Distribution - Evolution of Human Rights in India - Human rights in India during 21 st century – Human rights and Indian Law.	The students can 1. be able to understand the Patterns of violations and abuses. 2. be able to know about the Evolution of Human Rights in India. 3. have a clear idea about Human rights in India during 21 st century.	6
5	Minorities Rights Commission: Functions – Definitions – National Commission for Minorities - Functions of the commissions – History behind the rights-Scope of rights – Procedure for seeking information.	The students can 1. easily understand the Minorities Rights commission. 2. understand the Functions of the commissions. 3. be able to know about Right to Information Act, 2005.	6

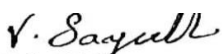
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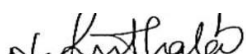
S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Human Rights and Law	Dr T.S. Ravi	2016 (2)	Margham Publications, Chennai
2	Human Rights	Dr.O.H Agarwal	2016 (16)	Central Law Publication, New Delhi

Reference Books

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Human Rights Law and Practice	Das Jatinder Kumar	2016 (2)	PHI Publication, New Delhi
2	Teaching of Human Rights	Baradat Sergio and Swaranjali Ghosh	2009 (1)	Dominant Publishers and Distributors, New Delhi
3	Human Rights and International Practices	A N Dange	2011 (1)	MD Publication Pvt Ltd, New Delhi.


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SEMESTER IV

Programme: UG	Subject: Commerce
Course code: 19UCOS41	Course Title: Business Taxation with GST
Category: Skill Based 2	Credits: 4

Objectives:

1. To inculcate the applicability of Indirect Taxes in the students day to day life.
2. To provide an insight into practical aspects and apply the provisions of GST laws to various situations.

Unit	Detailed Syllabus	Outcomes	Hours
1	Business Tax: Meaning - Objectives of Taxation - Features – Canons – Tax Vs Duty –Direct Tax Vs Indirect Tax – Powers of Union / States – Varieties of Indirect taxes – Movement towards GST– Salient features of GST –Subsuming of taxes – Benefits of implementing GST – Central GST – State / Union Territory GST.	The students can 1. understand the features and objectives of taxation. 2. learn the difference between Direct tax and Indirect tax. 3. be able to know the movements towards GST.	12
2	Registration: Registration Forms and Process -Special provisions relating to casual taxable person and non-resident taxable person -Registration Form and Process: Procedure for registration - Persons liable for registration - Persons not liable for registration, Compulsory registration - Deemed registration - Special provisions for Casual taxable persons and Non- resident taxable persons -Exempted under goods and services-Rates of GST.	The students can 1. be able to know about registration form. 2. understand about the persons liable for registration and persons not liable for registration. 3. be able to know the casual taxable and non-resident taxable person.	12
3	Levy of Tax and Exemption from Tax: Tax Rate Structure - Levy and Collection of Central/State Goods and Services Tax -Composition Levy - Taxable person - Power to grant exemption from tax - Time Value and Place of Supply: Time of supply of goods - Time of supply of services - Change in rate of tax in respect of supply of goods or services - Value of taxable supply.	The students can 1. understand the tax rate structure. 2. be known about the exemption from tax. 3. be able to know the change in rate of tax.	12
4	Input Tax Credit: Eligibility and conditions for taking input tax credit - Apportionment of credit and blocked credits - Availability of credit in special circumstances - Recovery of Input Tax Credit and Interest thereon.	The students can 1. understand the eligibility and conditions for input tax credit. 2. be able to know about the availability of credit. 3. be known about recovery of input tax credit.	12
5	Filing of GST returns and Rules – Forms -Returns Constitutional Amendments - Structure of GST (Dual Model) – Integrated GST - GST Council: Structure, Powers and Functions.	The students can 1. understand the Fundamental concepts of Goods and Service Tax. 2. be known about the Structure of GST. 3. be able to know the provisions for amendments.	12

Text Books:

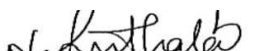
S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Business Taxation (Goods and Services Tax-GST)	T.S.Reddy and Y.HariPrasad Reddy	2010 (1)	Margham Publishers, Chennai
2	Business Taxation(Indirect Taxes)	T.S.Reddy and Y.HariPrasad Reddy	2012 (1)	Margham Publishers, Chennai

Reference Books

S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Handbook on Business Taxation	CA G.Sekar	2019 (1)	Wolters Kluwer India Pvt. Ltd. Chennai
2	GST Ready Reckoner	V.S.Datey	2019 (11)	Taxmann Publishers, New Delhi
3	GST Guide for Students	CA Vivek KR Agarwal	2017 (1)	Neelam Book House, New Delhi


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SEMESTER V

Programme: UG	Subject: Commerce
Course code: 19UCOC51	Course Title: Corporate Accounting
Category: Core 13	Credits: 4

Objectives:

- 1. To make the students to study the issue, allotment and forfeiture of shares of companies.
- 2. To enable the students to prepare final accounts according to Companies Act, 2013.

Unit	Detailed Syllabus	Outcomes	Hours
1	Issue of shares: Meaning - Definition – Salient features of Joint Stock Company – Distinction between Firm and Company – Kinds of Companies – Issues of Shares- at Par, at Premium and at Discount - Pro rata allotment - Forfeiture and Re-issue of Shares - Preference Shares - Forfeiture of Shares – Redemption of Preference Share - Issue of Debentures (Excluding reduction of debentures).	The students can 1. be able to know the differences between firm and company 2. understand the types of company in detail 3. be able to understand the details of preference shares	15
2	Valuation of Goodwill and Shares: Definition– Nature– Sources of Goodwill – Need for valuing Goodwill – Factors affecting value of Goodwill – Methods-Average Profit Method-Super Profit Method - Capitalisation Method - Methods of Valuation of Shares – Net Assets/Intrinsic value - Yield Method/Earning Capacity – Fair Value Method.	The students can 1. be able to know about the sources of Goodwill 2. understand about the methods of Goodwill 3. understand the need for valuing Goodwill to be known by the students	15
3	Final Accounts of Companies (as per Schedule II of Companies Act 2013): Introduction – P&L Account – Tax Adjustment - Dividend – Transfer to Reserve – Managerial Remuneration -Perquisites to be included in Managerial Remuneration -Administrative ceiling regarding Managerial Remuneration -Computation of Net Profit for Managerial Remuneration.	The students can 1. be able to know about Companies Act 2013 2. understand the preparation of final accounts of companies 3. be able to know about the perquisites to be included inmanagerial remuneration	15
4	Amalgamation, Absorption and External Reconstruction: Meaning under Accounting Standard (AS-14) – Types of Amalgamation – Accounting problems relating to Amalgamation and External Reconstruction – Purchase Consideration – Computation of Purchase Consideration – Lump Sum Method - Methods of Purchase Consideration. (Simple Problems only).	The students can 1. easily understand the procedures for amalgamation 2. be able to know about the procedures for absorption 3. be able to analyze the procedures for external reconstruction method	15
5	Profit Prior to Incorporation: Introduction – Treatment of Profit or Loss prior to Incorporation – Methods of ascertaining Profit or Loss prior to Incorporation – Basis of apportionment of expenses – Steps involved in ascertaining pre and post incorporation profit - Underwriting of Shares and Debentures.	The students can 1. be able to know about the treatment of profit or loss prior to incorporation 2. understand the methods of ascertaining profit or loss prior to incorporation to be known by the students 3. be able to understand the methods of underwriting of shares or debentures	15

Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Corporate Accounting	T.S.Reddy & A.Murthy	2007 (6)	Margham Publishers, Chennai
2	Corporate Accounting	S.P.Jain & K.L.Narang	2002 (3)	Kalyani Publishers, New Delhi

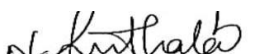
Reference Books

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Corporate Accounting	M.M.Varma, R.K.Agarwal	2002 (1)	King Book Publishers, New Delhi.
2	Advanced Accountancy	Schgal, Ashok, Schagal, Deepa	2008 (1)	Taxmann Allied Services (P) Ltd, New Delhi.
3	Advanced Accountancy	Dr.M..Arunachalam	2012 (1)	Himalaya Publishing House, New Delhi

*For Problem paper: 40% marks for theory and 60% marks for problems


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SEMESTER V

Programme: UG	Subject: Commerce
Course code: 19UCOC52	Course Title: Cost Accounting
Category: Core 14	Credits: 4

Objectives:

- 1. To acquire the basic knowledge of cost in business concerns.
- 2. To understand the techniques of cost control.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Meaning – Cost - Classification of Cost – Elements of Cost – Costing – Methods of Costing – Types of Costing - Cost Accounting – Objectives and Functions of Cost Accounting - Scope – Advantages and Limitations – Preparation of Cost Sheet (Simple problems).	The students can 1. be able to understand the functions of cost accounting 2. be able to know about methods of costing 3. learn to prepare the cost sheet.	12
2	Process Costing: Meaning – Definition – Differences between Job and Process Costing – Accounting Wastages – scrap – Defect– Joint products and By-products - Costing procedures – Losses and Gains in process – Accounting treatment of Normal and Abnormal Losses – Abnormal Gain (Simple problems).	The students can 1. understand the meaning of process costing 2. learn about Costing procedures 3. be able to understand the Accounting treatment of Normal and Abnormal Losses	12
3	Marginal Costing: Meaning – Definition – Characteristics - Marginal costing Vs Absorption costing - Uses and Limitations – Marginal Cost Equations – CVP Analysis – Contribution – Break Even Analysis – Assumptions of BEP- Break Even Chart - P/V analysis – Margin of Safety – Key Factors.	The students can 1. know about marginal costing in detail 2. be able to understand the equations of marginal costing 3. have a clear idea about CVP Analysis and Break Even Analysis	12
4	Budgetary Control: Budget –Meaning- Definition – Objectives – Budgeting – Budgetary Control - Advantages and Limitations – Steps for Implementation – Classification of Budgets - Flexible Budgets – Production and Sales Budgets – Cash Budget – Zero Base Budgeting - Master Budget.	The students can 1. learn the meaning of budgetary control. 2. be able to understand the classification of budgets in detail 3. be able to prepare of various budgets.	12
5	Standard Costing: Meaning –Definition – Preliminaries to the establishment of the Standard Cost – Standard Costing Vs Budgetary Control - Standard Cost Vs Estimated Cost - Variances – Material Variances – Labour Variances – Overhead Variances – Sales and Profit Variances (Simple problems).	The students can 1. have a clear idea about standard costing 2. know about the various steps involved in standard costing 3. have a clear idea about material, labour and overhead variances in detail.	12

Text Books:

S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Cost Accounting	R.S.N.Pillai & V.Bagavathi	2009(19)	S.Chand & Company LTD, Ramnagar, New Delhi.
2	Cost Accounting	S.P.Jain&Narang	2004 (1)	Kalyani Publishers, New Delhi

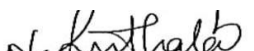
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S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Cost Accounting	S.P.Iyenger	2005(10)	Sultan Chand & Sons, New Delhi.
2	Cost Accounting	Dr. Radha	2013 (1)	Prassana Publication, Chennai.
3	Cost Accounting	T.S.Reddy and Y.Hari Prasad Reddy	2011 (4)	Margham Publication, Chennai.

*For Problem paper: 40% marks for theory and 60% marks for problems


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SEMESTER V

Sri Sarada College for Women (Autonomous), Tirunelveli 627011
SEMESTER V

Programme: UG	Subject: Commerce
Course code: 19UCOC53	Course Title: Business Law
Category: Core 15	Credits: 4

Objectives:

1.
- To make the students to understand the definition of business law.
2.
- To enable the students to study the scope and boundaries of business law.

Unit	Detailed Syllabus	Outcomes	Hours
1	Indian Contract Act, 1872: Essentials of a valid Contract – Classification – Offer – Acceptance – Consideration – Capacity of the parties-Free consent – Legality of Object and Consideration – Void agreement – Contingent contracts.	The students can 1. know about the essentials of valid contract in detail 2. be able to classification of contracts. 3. know about offer, acceptance and consideration in detail	15
2	Performance of contract: Time and Place for Performance – Reciprocal Promises – Rules for Reciprocal Promises - Discharge of Contract – Meaning – Modes of discharge of contracts – Discharge by impossibility - Breach of Contract – Remedies – Quasi contracts.	The students can 1. be able to know about time and place for performance 2. be able to understand the reciprocal promises in detail 3. have a clear idea about the modes of discharge of contracts in detail	15
3	Special Contracts: Meaning - Definition – Indemnity – Guarantee - Kinds of guarantee - Differences between Contract of Indemnity and Contract of Guarantee – Rights of Surety against Creditor, Principal Debtors and Co-surety - Discharge of Surety from liability.	The students can 1. have a clear idea about the differences between contract of indemnity and contract of guarantee 2. be able to know about the various kinds of guarantee 3. be able to know about discharge of surety from liability.	15
4	Bailment: Meaning - Kinds of Bailment – Duties of Bailor - Duties of Bailee – Rights of Bailor and Bailee – Lien - Kinds of lien – Finder of lost goods - Pledge – Essentials of Pledge – Duties of Pawnor and Pawnee - Bailment Vs pledge – Contract of Agency – Duties and Rights of an agent – Duties of Principal – Sub-agent and Substituted Agent – Termination of Agency.	The students can 1. be able to know about bailment in detail in the unit 2. understand various kinds of bailment 3. learn the differences between bailment and pledge.	15
5	Sale of Goods Act: Sale - Agreement to sell - Differences between Sale and Agreement to Sell – Conditions and Warranties – Differences between Conditions and Warranty – Condition treated as a Warranty - Sale and Hire Purchase Agreement – Meaning – Classification – Documents of title to goods – Rights and duties of buyers and sellers – Rights of unpaid seller.	The students can 1. have a very clear idea about sale of goods Act. 2. know about the differences between conditions and warranty in detail. 3. know about the rights and duties of buyers and sellers.	15

Text Books:

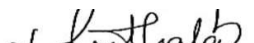
S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Business Law	N.D . Kapoor	2014 (5)	Sultan Chand & Sons, New Delhi.
2	Business Law	Nirmal Singh	2004 (1)	Deep& Deep Publication, New Delhi.

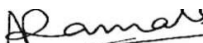
Reference Books

S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Business Law	S.M. Sundaram	2011 (2)	Karaikudi Meenakshi Publication.
2	Business Law	M.C.Kuchal	1996 (1)	Vikas Publication, New Delhi.
3	Business Law	Rao, Pettina Mohana	2013 (1)	PHI Learning, New Delhi.


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Sri Sarada College for Women (Autonomous), Tirunelveli 627011
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SEMESTER V

Programme: UG	Subject: Commerce
Course code: 19UCOE51	Course Title: Income Tax, Law and Practices-I
Category: Major Elective 1	Credits: 3

Objectives:

1. To make the students to apply the basic concepts of income tax.
2. To impart the students to study the provisions regarding computation of first three heads of income i.e., salary, house property and business income.

Unit	Detailed Syllabus	Outcomes	Hours
1	Basic Concept: Capital and Revenue (Expenses and Receipts) Taxable entities- Person, Assessee, previous and assessment year, total income, gross total income – Concept of income –Agricultural Income Income exempted from tax.	The students can 1. be able to understand the basic concepts of capital and revenue expenditures and incomes 2. be able to know about the taxable entities in detail 3. know the methods of computing agricultural incomes are well known by the students	12
2	Residential Status: Classification of Residential status of taxable entities- Computation of Residential status of an individual- Basic and addition condition – incidence of taxation – Meaning of income received, accrued, deemed to be received – Deemed to be accrued -problems.	The students can 1. be able to have a clear idea about residential status in detail 2. be able to know about the taxable entities for residential status 3. understand the computation of residential status of an individual.	12
3	Income from Salary: Features of salary-Due date of salary-Receipts included under salary- Different forms of salary- Basic salary – Commission - Bonus- Allowances- Provident fund-Advance and arrears of salary – Perquisites – Problems in computation of salary income.	The students can 1. be able to understand the features of salary in detail 2. understand various receipts included under salary are well known by students. 3. learn different forms of salary	12
4	Income from House property: Meaning - Annual value – Standard deduction – Unrealized rent – problems in computation of house property income - Let out house - Self occupied house-Gross Annual value.	The students can 1. be able to understand about the income from house property in detail 2. understand the computation of house property incomes. 3. learn the difference between let outhouse and self occupied house	12
5	Income under the Head Business or profession: Definition of Business - Definition of Profession - Meaning of Business and Profession – Income chargeable to Tax under the Head - Allowable expenses – Expressly disallowed expenses – Computation of business and professional income.	The students can 1. have a clear idea about the income from business and profession in detail 2. understand the computation of business income. 3. know the computation of professional income.	12

Text Books:

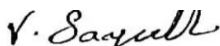
S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Income Tax Theory, Law and Practice	T.S.Reddy and Y.Hari Prasad Reddy	2019 (1)	Margham Publications, Chennai
2	Income tax Law and Accounts	Dr. H.C. Mehrotra and Dr. S.P. Goyal	2018 (36)	Sahitya Bhawan Publications, Agra.

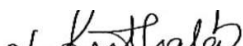
Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Income Tax Law andPractice	Pagare, Dinakar	2018 (17)	Sulthan Chand & Co.,New Delhi.
2	Income Tax Law and Practice	T.Srinivasan, Mayilvaganan	2014 (1)	Science Technology Publication, Chennai.
3	Income Law and Practice	V.P.Gaur, D.B.Narang, Pooja Ghai and Rajeev Puri	2016 (29)	Kalyani Publishers, New Delhi

*For Problem paper: 40% marks for theory and 60% marks for problems


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SEMESTER V

Programme: UG	Subject: Commerce
Course code: 19UCOE52	Course Title: Capital Market
Category: Major Elective 2	Credits: 3

Objectives:

1.
- To make the students to understand the meaning and importance of Financial and Capital markets.
2.
- To create an interest among students towards stock market investment.

Unit	Detailed Syllabus	Outcomes	Hours
1	Capital Market: Financial Market – Structure – Capital Market – Meaning, Classification – Primary and Secondary – Indian Securities Market – Government Securities Market.	The students can 1. be able to know about the meaning of financial market in detail 2. know about the structure of capital market in detail 3. understand the classification of capital market.	12
2	Primary Market: Meaning - Methods of Flotation of Capital - Public Issue – IPO – FPO – Procedure of Public Issue – Book Building Process – Role of Intermediaries – Private Placement.	The students can 1. be able to know about the primary market in detail 2. understand the methods of flotation of capital 3. understand the procedure of public issue in detail	12
3	Secondary Market: Functions of Stock Exchange – Dematerialisation of Securities Depositories – Major stock exchanges in India – BSE – NSE – Listing – Online trading – Demat Accounting - Clearance and Settlement – Rolling Settlement – Investment Vs Speculation.	The students can 1. be able to know the functions of stock exchange. 2. learn about major stock exchanges in India 3. be able to know about clearance and settlement in detail	12
4	Derivatives: Meaning – Types of derivatives – Commodity Vs Financial Derivatives – Forwards – Futures – Options – Advantages – Disadvantages – Trading Mechanism – Commodity Exchanges.	The students can 1. be able to know about the meaning of derivatives in detail 2. understand the various types of derivatives 3. be able to analyze the differences between commodity and financial derivatives	12
5	Regulatory Framework of Stock Exchanges: Securities Contract (Regulation) Act (basics only) – Role and Functions of SEBI – Regulatory Functions – Development – Investor Protection Fund – Purpose – Operation – Grievances and Redressal.	The students can 1. be able to know about the regulatory framework of stock exchanges in detail 2. understand the role and functions of SEBI in detail 3. understand the Investor Protection Fund purposes and operation	12

Text Books:

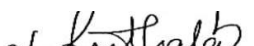
S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Financial Market and Services	Gordon. E., Natarajan. K.	2009 (5)	Himalaya Publishing House, New Delhi
2	Financial Services	Dr.V.Radha	2004 (1)	Prasanna Publications, Chennai

Reference Books

S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Financial Services and System	Gurusamy.S.	2012 (2)	Tata Mc Graw – Hill Publishing Co. Ltd, New Delhi
2	Merchant Banking and Financial Services	Gurusamy.S.	2013 (1)	Tata Mc Graw – Hill Publishing Co. Ltd, New Delhi
3	Financial Services	D.Joseph Anbarasu V.K.Boominathan, P.Manoharan, G.Gnanaraj	2003 (1)	Sultan Chand & Sons, New Delhi


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SEMESTER V

Programme: UG	Subject: Commerce
Course code: 19UCOE53	Course Title: Financial Accounting Software
Category: Major Elective 3	Credits: 3

Objectives:

1. To enable the students to understand the application of tally in accounting
2. To make the students to know the rules for treatment of tally in accounting

Unit	Detailed Syllabus	Outcomes	Hours
1	Fundamentals Of Tally.ERP 9: Introduction - Salient Features of Tally ERP 9 - Getting functional with Tally ERP 9 - Start up – Quitting - Create a Company - Select a Company - Alter Company - Shut a Company – Company Features – Configurations.	The students can 1. be able to understand the fundamentals of Tally ERP 9 in detail 2. be able to know about the functions with tally 3. learn about Company configurations	12
2	Create Accounting Masters in Tally.ERP 9: Group - Pre-defined Groups of Accounts - Creating Single Group - Creating Multiple Groups - Displaying Group - Altering Group. Ledgers - Creating Single Ledger - Creating Multiple Ledgers - Displaying Ledger.	The students can 1. be able to understand the masters of Tally ERP9 2. learn to create group and multiple groups 3. be able to know about the creation of various ledgers and multiple ledgers.	12
3	Creating Inventory Masters in Tally.ERP: Stock Groups - Creating Single, Multiple Stock Group, Displaying and Altering Stock Groups. Stock Categories - Creating Single, Multiple Stock Categories, Displaying and Altering Stock Category - Unit of Measure , Godowns - Creating Single Multiple Godowns, Displaying and Altering Godowns	The students can 1. be able to understand the inventory masters of Tally ERP9 2. learn to create Multiple stock groups 3. be able to Create Single Multiple Godown, Displaying and Altering Godown	12
4	Voucher Entry In Tally.ERP 9: Voucher Types - Predefined Vouchers in Tally.ERP 9, Creating Voucher Type, Displaying Voucher Type, Altering Voucher Types - Financial Statements - Balance sheet, Profit & Loss A/c, Trial Balance - Accounting Books & Reports –Different types of vouchers.	The students can 1. have a clear idea about voucher entry in Tally ERP9 2. understand the creation of various voucher types 3. learn to Prepare financial statements	12
5	Getting Started with GST: Introduction - Enabling GST and Defining Tax Details – Transferring Input Tax Credit to GST – Intrastate Supply of Goods - Interstate Supply of Goods Return of Goods – Supply Inclusive of Tax – Defining Tax Rates at Master and Transactions Levels - GST Reports – Input Tax Credit Set Off – GST Tax Payment – Exporting GSTR-1 Return and Uploading in GST Portal – Exempted Goods – Accounting of Supply of Services – Exempted Services- Learning Shortcut Keys.	The students can 1. be able to know the introduction of GST. 2. be able to know about intrastate supply and interstate supply. 3. be able to know about exempted services.	12

Text Books:

S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Tally (version 9)	Ashok K.Nadhani, Kishore K.Nadhani	2009 (1	BPB Publications, Mumbai
2	Tally	Nellai Kannan	2013 (1)	Neis Publications, Madurai

Reference Books

S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Tally ERP 9	Dr.Rani, S.Mabel Latha	2015 (1)	B-Digest Publications, Nagarkoil
2	Tally ERP 9 (Power of Simplicity): Software for Business and Accounts	Shraddha Singh, Navneet Mehra	2014 (1)	VS Publishers, Mumbai
3	Learn Tally ERP 9	Dr.Chheda Rajesh, Obaid Motevala	2013 (1)	ANE Book (P) Ltd, New Delhi

Sri Sarada College for Women (Autonomous), Tirunelveli -627011Reaccredited with “A” grade by NAAC
SEMESTER V

Programme: UG	Subject: Commerce for Competitive Examination & Project
Course code: 19UCOP51	Course Title: Commerce
Category: Core 17	Credits: 6

Objectives:

- 1. To enable the students acquire overall knowledge on Professional Competencies.
- 2. To enable the students apply the acquired knowledge Professional Competencies.
- 3. To enable the students to compete in the professional competitive examination.

Unit	Detailed Syllabus – Commerce for Competitive Exam
I	Financial Accounting & Cost Accounting : Accounting Principles – Concepts and Conventions – Accounts and classification– Double entry system of Accounting – Journal – Ledger – Subsidiary Books – Trial balance – Final Accounts - Definition of costing – uses of costing – objects and advantages – difference between cost and financial accounts – installation of costing systems – analysis and classification of costs – preparation of cost sheet – reconciliation of cost and financial books.
II	Taxation : Taxation - Types of Taxes - Cannons of Taxation – Important Definitions: Assessment, Assessment Year, Previous Year (including Exceptions), Assessee, Person, Income, Casual Income, Gross Total Income, Agricultural Income Calculation of Tax Liability of an individual- - GST.
III	Business Statistics and Research Methods: Index numbers- Regression analysis -Correlation-Measures of Dispersion- Measures of Central Tendency -Meaning and purpose -types of research -Pure and applied, survey, case study experimental, exploratory -Research Design -Meaning and purpose -types of research -Pure and applied, survey, case study experimental, exploratory -Research Design -Primary and secondary data - Report writing -Hypothesis testing -Processing and analysis of data
IV	Principles of Management and Business Organisation: Introduction to management- Meaning and definition of management-Functions of management- Managerial skills-Levels of management-Co-ordination and controlling- Organising: Directing Planning and Decision making.
V	Economics and Auditing: Definition and meaning of business economics – basic concepts – importance and limitations of business economics –goods – types of goods – wants – law of diminishing utility – consumer surplus -definition and meaning of business economics – basic concepts – importance and limitations of business economics –goods – types of goods – wants – law of diminishing utility – consumer surplus. Demand analysis - Production analysis -Pricing of the product –Profit analysis.

Project Guidelines

(For Certificate, Diploma, Advanced Diploma, UG, PG, and MPhil., programmes)

- 1. Duration of the project work shall be for a period of one semester
- 2. Project work shall be carried out under the supervision of a faculty member of the department concerned or from allied department, if the work is of interdisciplinary in nature or with internal or external expert beyond the department as co- supervisor.
- 3. The supervisor allocation shall be made by lot by the end of 4 semester in UG, by the end of 2ndsemester in PG (April 1st week) and for MPhil., 15 days after joining the programme. The allocation details may be sent to Autonomous cell by 10th April for UG & PG and for MPhil., 30 days after joining the programme.
 - a. After allocation, the respective supervisors have to conduct orientation/counsel meeting with the assigned candidates about the project with P3 agenda (Participation, Presentation, and Publication) towards career prosperity. Subject Knowledge towards Pure and Applied part may be highlighted for doing the project.
 - b. The HoD shall review the coverage of different fields of the subject amongst the candidates and to see that the students should not focus on particular fields alone.
- 4. The candidates have to study/refer journals/previous works/focus on the proposed topic in the summer vacation and 5-10 titles of proposed project on respective subject (discipline) or on allied subject (interdisciplinary) with economic/scientific/social/local/state/national/global issues may be submitted to the guide by May end.
- 5. The supervisor shall guide the candidates on their choice after having reviewed proposed topics, the mindset and work culture, provided the work is of innovative in nature, affordable and with future prospective. If not satisfied with the proposed topic/due to lack of infrastructure/beyond scope and practicality, supervisor herself shall suggest the field/topic for work. Hard copy of proposed title with objectives in the prescribed format to be submitted to CoE’s Office through Dean, Autonomous in the last week of June
- 6. Parent’s undertaking/willingness may be obtained in writing by inviting the parents for department level meeting after explaining its importance, guidelines, safety precautions related to outdoor project commitments etc.
- 7. Project period – June to September. Last date for the submission of dissertation is 15th October
- 8. Project Progress Review has to be conducted in 5th July, 5th August and 5th September.Report Card for individual candidates shall be maintained at the department for audit at any time. (Proforma)
- 9. If a candidate fails to submit the dissertation on or before the specified date, she may submit the same on or before 15th November by paying prescribed late fee.
- 10. The evaluation of dissertation will be as per the University/Autonomous norms The assessment of Project component during the Course and in the End-semesterexaminations shall be carried out as follows:

CIA (Max: 25 Marks)				End – Semester Examination(Max.: 75 marks)				
Marks for Reviews (Average of the best two of the three compulsory Reviews) (Max.: 25 marks)				Marks for Thesis Evaluation (Max.: 25 marks)		Marks for Viva-Voce Exam. (with the Deptl. Faculty Member / Course students) (Max.: 50 marks)		Total (Max.)
Review I (Max.)	Review II (Max.)	Review III (Max.)	Average of the best two (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	
25	25	25	25*	12.5	12.5	25	25	75*

- * The marks secured may be rounded off to its nearest integer.
11. PG and M.Phil., students should carry out the project individually. UG students may undertake group projects with a maximum of three students in a group. The group may be of interdisciplinary nature combining students from two to three departments with the concern of the respective guides. An undertaking, in this regard, has to be submitted by the group of students with the endorsement by the guides.
12. LATEX procedure shall be followed for Mathematics projects.
13. **GUIDELINES ON THESIS (WITH STATIONERY ECONOMY MEASURES):**
- a. Number of Pages (inclusive of prefix and suffix):
 - i) V semester Project Maximum 40 pages;
 - ii) VI semester Project Maximum 60 pages,
 - iii) PG Projects Maximum 80 pages; Iv) MPhil., maximum 100 pages.
 - b. Size of the paper A4; Font Times New Roman; Title 14 Capitals/Bold; Subtitle 12 Capitals/Bold; Running matter 11.
 - c. Left and Right margin 1 and half inch; Top and bottom margin 1 inch
 - d. Line space 1.5
 - e. Table and Figures shall be in separate sheets (without page number). More than 1 table or figure or plate is permitted in a page. Table number followed by the title should be on the top of the respective table. Similarly Figure Number followed by title be at the bottom of the respective figures. Regarding Plates ie photographs only original photographs (printed in photo sheet) of the work carried out and scientifically relevant to be included. The size the photographs should be reduced and neatly arranged in a page with appropriate title or sub title. Plate Number followed by the title be at the bottom of the photographs concerned.
 - f. Number of copies:
 - i. Copy 1 – Student copy – Neatly typed on one side with good binding to be submitted (to be returned immediately after examination)
 - ii. Copy 2 – Department copy - Neatly typed on both sides of the paper with stapler pin binding –Copies of all students have to be bound in volumes of 1 or 2 and kept in the department for reference.
 - iii. Copy 3 - Autonomous Office copy – Projects of all students as one CD/DVD & Hard copy of the abstract/extended abstract as OHP bound booklet.
 - iv. For PG & MPhil., (Candidate copy - Hard bound (one side print), Autonomy (CD), Guide copy (CD), Department (CD containing all projects of the class), Central library (CD containing all projects of the class) & Hard copy of the abstract/extended abstract as OHP bound booklet.

g. Composition of the thesis:

Uniformity in Prefix contents for all disciplines			
1	Wrapper page		
2	Wrapper page copy		
3	Contents		
4	Acknowledgement by the candidate		
5	Declaration by the Candidate with candidate's Photo attested by HoD		
6	Certificate by the supervisor, countersigned by HoD		
7	Evaluation Examiners Page		
Running matter structure Arts, Languages, Humanities		Running matter structure Science	
1	Abstract/Extended Abstract	1	Abstract/Extended Abstract
2	Introduction	2	Introduction
3	Review of Literature	3	Review of Literature
4	Profile of The Study	4	Materials
5	Methodology & Data collection	5	Methodology
6	Analysis and Interpretation	6	Results
7	Findings, Suggestions and Conclusion	7	Discussion
8	Bibliography(Uniform format)	8	Bibliography (Uniform format)
Uniformity in Suffix – contents			
Publications – Xerox of Abstracts/extended abstracts/Full papers			

h. Bibliography: Arts & Science.

i. Research article:
Latha, P., Dhanabackialakshmi, R., Kumar, P.S. and Karuthapandian, S. 2016. Synergistic effects of trouble free and 100% recoverable CeO₂/Nylon nanocomposite thin film for the photocatalytic degradation of organic contaminants. Separation and Purification Technology, 168(2): 124–133

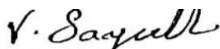
ii. Conference / Seminar / Symposium papers
Peng, J., Zhang, X., Lei, Z., Zhang, B., Zhang, W. and Li, Q. 2009. Comparison of several cloud computing platforms. In: Proceedings of Second International Symposium on Information Science and Engineering, 23 – 27

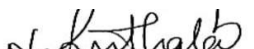
iii. Books
Versteeg, H.K. and Malalasekera, W. 2007. An Introduction to Computational Fluid Dynamics. II Edn. Pearson Education Ltd., New York, pp. 517

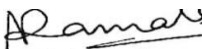
iv. Book Chapters
Wade, S.E. 1981. Statistical designs for survey research. In: Stempel, G.H. and Westley, B.H. (Eds.). Research methods in mass communication. Printice Hall India Learning India Ltd., New Delhi, pp. 167

v. Web reference
National Institute of Mental Health. 2018, July. Anxiety disorders. U.S. Department of Health and Human Services, National Institutes of Health. <https://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml> (Author to be included first, date to be included before month, if available)


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SEMESTER VI

Programme: UG	Subject: Commerce
Course code: 19UCOC61	Course Title: Company Accounts
Category: Core 18	Credits: 4

Objectives:

1.
- To know the preparation of liquidator’s final statement of accounts.
2.
- To prepare the final accounts of banking company and Holding Company.
3.
- To train the students to prepare final accounts under double account system and Human resource accounting.

Units	Detailed Syllabus (all units of same size and duration)	Outcomes	Hours
1	Liquidation - Introduction- Meaning – Liquidation and insolvency – Modes of winding up – Order of payment – Powers and duties of liquidator – Statement of affairs – Distribution of surplus - Liquidator’s final statement of accounts.	The students can 1. be able to know the order of payment at the time of liquidation. 2. understand the various powers and duties of liquidator. 3. be able to learn liquidator’s final statement of accounts.	15
2	Accounts of Banking Companies - Meaning – Objectives –Advantages- legal provisions- Disposal of non-banking assets- restrictions on commission and dividend- CRR and SLR- Money at call and at short notice- Acceptances- Advances - Endorsements- Bill for Collection- Rebate on bill discounted problems	The students can 1. be able to understand the distribution of surplus of liquidator’s company. 2. have the knowledge of disposal of non-banking assets. 3. be able to know about money at call and at short notice.	15
3	Holding Company Accounts - Meaning – Objectives –Advantages - minority interest- Cost of control-capital and revenue profit- revaluation of assets and liabilities- treatment of dividend - sale of shares- share premium- preliminary expenses- consolidated Balance sheet - problems.	The students can 1. learn to prepare consolidated Balancesheet 2. understand the treatment of dividend. 3. be able to know about cost of control method of holding company.	15
4	Double Accounts – features- advantages - Accounts of State Electricity Boards Depreciation -Contingency reserve development reserve- tariff and dividend control reserve - capital base - clear profit-disposal of surplus - Replacement of assetsproblems.	The students can 1. be able to know the concept of tariff and dividend control reserve. 2. know the disposal of surplus and Replacement of assets under DoubleAccounts system. 3. be able to understand the accounting treatment of State Electricity Boards	
5	Human Resource accounting – Introduction – Definition – Valuation of human resources – Historical cost approach – Replacement cost approach – Opportunity cost approach – Merits and demerits -Objectives -Methods of Human Resource Value Accounting.	The students can 1. be able to know the concept of Human Resource accounting. 2. be able to know the merits and demerits of Human Resource accounting. 3. understand the various methods of Cost Approach.	15

Text Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Advanced Accounting	Jain S.P Narang K.L	Reprint 2002	Kalyani Publishers, Chennai
2	Corporate Accounting	T.S.Reddy & Dr.A.Murthy	2015 (6)	Margham Publications, Chennai
3	Advanced Accountancy	Gupta R.L Radhaswamy.M	2014 (17)	Sultan Chand and Sons, New Delhi

Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Advanced Accountancy Volume - II	M.Wilson	2009 (1)	Scitech Publications, Chennai
2	Advanced Accountancy Volume – II	S.N.Maheswari	2012 (1)	Vikas Publishing House, Chennai

*For Problem paper: 40% marks for theory and 60% marks for problems

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Sri Sarada College for Women (Autonomous), Tirunelveli 627011
SEMESTER VI

Programme: UG	Subject: Commerce
Course code: 19UCOC62	Course Title: Management Accounting
Category: Core 19	Credits: 4

Objectives:

1. To familiarise the students with the basic management accounting concepts and their applications in managerial decision-making
2. To acquaint the students with accounting concepts, tools and techniques for Managerial decisions.

Unit	Detailed Syllabus	Outcomes	Hours
1	Management Accounting: Introduction- Meaning – Definition – Nature and Scope – Utility - Principles – Functions - Limitations – Tools of Management Accounting - Management Accounting Vs Financial Accounting – Management Accounting Vs Cost Accounting.	The students can 1. understand fundamentals of Management accounting Principles. 2. know about Management accounting and Financial accounting. 3. understand Cost accounting and Management accounting.	18
2	Ratio Analysis: Introduction - Meaning – Definition – Objectives – Uses and limitations of Ratio analysis - Classification of Ratios – Financial ratios – Profitability Ratios —Turnover Ratios.	The students can 1. understand the fundamentals of Ratio Analysis. 2. be able to do the Classification of Ratios. 3. understand the Uses and Limitations of Ratio Analysis	18
3	Fund Flow Analysis: Introduction -Meaning – Reason for preparing Fund Flow Statement – Uses of Fund Flow Statement – Preparation of Fund Flow Statement- Adjustment regarding treatment of provision for Taxation, Proposed Dividend and Depreciation – Sources and Application of Funds.	The students can 1. be able to understand the Fund Flow Analysis. 2. be able to compute Fund Flow Statement and Adjustments. 3. learn the preparation of Utility and Limitations of Cash Flow Analysis.	18
4	Cash Flow Analysis (AS 3): Introduction - Meaning – Definition – Uses of cash flow statement - Difference between Cash Flow and Fund Flow Statement– Preparation of Cash Flow Statement from operations – Procedure for preparation of cash flow - Utility and Limitations of Cash Flow Analysis. (Simple problems only)	The students can 1. be able to understand the Cash Flow Analysis. 2. be able to do the Cash Flow Statement and Adjustments. 3. learn the preparation of Sources and Application of Funds.	18
5	Capital Budgeting: Meaning – Definition – Uses - Concepts – Importance of Capital Budgeting – Advantages - Disadvantages–Capital Budgeting Methods – Payback period method– Net Present Value method-Internal Rate of Return Method (Simple problems only).	The students can 1. easily understand the Concepts of Capital Budgeting. 2. understand Capital Budgeting Process, Merits and demerits. 3. be able to do Traditional methods, Payback period method, Net Present Value method, Internal Rate of Returns	18

Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Management Accounting	R.S.N.Pillai & Bagavathi	2014 (1)	Sultan Chand & Sons, New Delhi
2	Principles of Management Accounting	Dr.S.N.Maheswari	2001 (12)	Sultan Chand & Sons, New Delhi

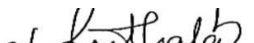
Reference Books:

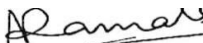
S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Management Accounting	E,Gordon,N.Jeyaram, N.Sundaram & R.Jeyachandran	2010 (1)	Himalaya Publishing House, Mumbai
2	Financial and Management Accounting	Dr.S.N.Maheswari	2012 (5)	Sultan Chand & Sons,New Delhi
3	Management Accounting	Alkinson, Antony. A.	2001 (3)	Pearson Education, New Delhi

*For Problem paper: 40% marks for theory and 60% marks for problems


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SEMESTER VI

Programme: UG	Subject: Commerce
Course code: 19UCOC63	Course Title: Industrial Law
Category: Core 20	Credits: 4

Objectives:

1. To acquaint knowledge on industrial relations framework in our country
2. To study various rights and benefits available to the workmen under the legislations.
3. To make the students to know about ESI Act.

Units	Syllabus	Outcomes	Hours
1	The Factories Act, 1948 - definitions - approval, licensing and registration of factories - duties of occupier - inspecting staff - certifying surgeons - provisions for health – safety – welfare - working hours and holidays- employment of young persons and women –annual leave with wages- penalties and procedure.	The students can , 1. to be aware of The Factories Act. 2. to gain an idea on approval, licensing and registration of factories. 3. to obtain the knowledge on provisions for health and safety of employees.	15
2	Workmen Compensation Act 1923 - Scope and coverage - definitions–rules -personal injury by accident - occupational diseases arising out of and in the course of employment - theory of national extension - amount of compensation- distribution of the compensation- notice and claim	The students can , 1. to be aware of Workmen’s compensation Act. 2. to acquire knowledge in occupational diseases arising out of and in the course of employment. 3. to get an idea on the amount of compensation, distribution of the compensation.	15
3	Industrial Disputes Act 1947 - object - definitions- conciliation - machinery- adjudication machinery- powers and duties of Author/sities - procedures - voluntary reference to arbitration – award - strike – and lock outs – lay off – retrenchment – transfer and closing down of their undertaking – penalties	The students can , 1. to understand the laws related to working environment in industries. 2. to gain knowledge of conciliation, powers and duties of Author/ sities. 3. to know the various methodology relating to strike, and lockouts	15
4	The Trade Unions Act, 1926 registration of trade unions–rights and liabilities of registered trade unions- regulations- penalties and procedure Consumer Act 1986- Consumer Protection Council- Jurisdiction of District Forum - Jurisdiction of State Commission	The students can , 1. to be aware of the laws relating to Trade Unions Act. 2. to gain an idea on registered trade unions rights and liabilities, procedures. 3. to obtain the knowledge on consumerism.	15
5	The Employees’ State Insurance Act 1948 - Establishment of Employees’ State Insurance Corporation. — Constitution of Corporation. Term of office of the members of the Corporation.–The payment of Gratuity Act 1972- Determination of the amount of gratuity- Powers of Inspectors - Recovery of gratuity- Protection of gratuity(With Case Studies)	The students can , 1. to develop an idea on Employees’ State Insurance Act. 2. to understand the features of welfare and wage legislations. 3. to develop the judicial setup of Labour Laws.	15

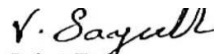
Text Books

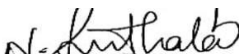
S. No	Title	Author/s	Year (Edn)	Publisher/s
1	General and Commercial Law	N.D.Kapoor Rajiniabbi	2001 (2)	Sulthand Chand & Sons, New Delhi
2	Law, Ethick & communication	Dr.G.K.Kapoor & Dr.C.B.Gupta	2001 (3)	Sulthan Chand & Sons, New Delhi
3	Elements of Mercantile Law	N.D.Kapoor	2014 (36)	Sulthan Chand, New Delhi

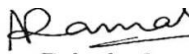
Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Corporate and Allied Laws	Dr.G.K.Kapoor	2003 (2)	Sulthan Chand & Sons, New Delhi
2	Law, Ethick & Communication	Dr.G.K.Kapoor & Dr.C.B.Gupta	2004 (3)	Sulthan Chand & Sons, New Delhi
3	Company Law	Dr.G.K.Kapoor	2003 (6)	Sulthan Chand & Sons, New Delhi


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SEMESTER VI

Programme: UG	Subject: Commerce
Course code: 19UCOC64	Course Title: Auditing
Category: Core 21	Credits: 4

Objectives:

1.
- To know the importance of audit in commercial and non-commercial organizations.
2.
- To understand the procedures to be followed while auditing in the business organizations.
3.
- To understand the concept of verification and valuation of assets and liabilities.

Units	Syllabus	Outcomes	Hours
1	Introduction -meaning –objectives – difference between Accountancy and Auditing – advantages – limitations – Audit programme –Audit working papers – preliminaries before Audit – test checking and routine checking.	The students can 1. to be able to understand the concept of auditing. 2. be able to learn the process of audit programme and audit working papers. 3. understand the preliminaries to becarried out before audit.	12
2	Internal check and internal control – meaning – objectives – difference between internal control and internal Audit – Advantages and Disadvantages of internal check – internal check regarding cash, purchases, purchase returns, sales and sales returns.	The students can 1. be enable to do internal check andinternal control. 2. understand the advantages and disadvantages of internal check. 3. be able to know internal check of purchase and sales transactions.	12
3	Vouching – meaning – objects – importance of vouchers – precautions to be taken by the Auditors while examining vouchers – vouching of cash transactions – Vouching of trading transactions.	The students can 1. be able to learn the concept of vouching. 2. understand the precautions to be takenby the auditor while examining vouchers. 3. be able to learn the vouching of cashand trading transactions.	12
4	Verification and valuation of assets and liabilities – classification of assets – verification of different types of assets – verification of liabilities – Valuation of investment, Stock -in - Trade and Book debts.	The students can 1. be able to classification of assets and liabilities. 2. be able to verification of assetsand liabilities. 3. understand the valuation of investment.	12
5	Company Auditor - Appointment – qualification and disqualification – removal of an Auditor – status –rights – duties and liabilities – Auditor’s Report – content – kinds of Auditors Report – general considerations for drafting the report.	The students can 1. be aware of the various rights, dutiesand liabilities of an auditor. 2. learn to identify the qualificationand disqualification of auditors 3. be able to identify the considerations for drafting thereport.	12

Text Books :

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Practical Auditing	B.N.TandonS.Sudharsanam S.Sundrarabahu	2014 (1)	Sulthand Chand Company, New Delhi
2	A Hand book of Practical Auditing	Dr.B.M.TandonDr.S.SutharsanamDr.S.Sundarabahu	2015 (2)	Sulthand Chand Company, New Delhi

Reference Books :

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Practical Auditing	S.Vengadamani	2017 (2)	Margham Publications, Chennai
2	Practical Auditing (As perCompanies Act,2013)	Dr.L.Natarajan	2018 (2)	Margham Publications, Chennai

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Programme: UG	Subject: Commerce
Course code: 19UCOC65	Course Title: Company Organisation
Category: Core 22	Credits: 4

Objectives:

1.
- To make the students to understand the basic concepts of a company.
2.
- To enable the students to learn about the functioning of a company.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction –Definition – Characteristics – Company Vs Partnership – Kinds of companies – Private company – Public company – Distinction between Public Company & Private company – Special privileges of a Private company.	The students can 1. get the knowledge of various companies. 2. understand different kinds of companies. 3. know the privileges of private company.	15
2	Formation of company - Incorporation –Documents to be filed with the Registrar – Certificate of Incorporation – Promoter – Memorandum of Association – Contents – Alteration of Memorandum – Articles of Association – Contents – Alteration of Articles - Prospectus – Registration of prospectus – Contents of prospectus.	The students can 1. understand the formation of company. 2. be able to know differenttypes of document to be registered. 3. learn about Memorandum and Articles of Association and also prospectus.	15
3	Shares and Share capital -Definition-Nature of share-Stock and shares-Types of shares-Provisions relating to application and allotment of shares- Call on shares- Share certificate-Share warrant- Provisions relating to Transfer and transmission of shares-Blank transfer-Lien on shares Surrender of shares-Forfeiture of shares. Distinction between shares and debentures.	The students can 1. understand about different types of shares. 2. learn the procedure of allotment of shares, calls of shares. 3. be able to know about lien on shares, surrender of shares and forfeitures of shares.	15
4	Meetings and proceedings -Meetings of company – Statutory Meeting – Annual general meeting – Extraordinary general meeting – Class meetings – Requisites of a valid meeting – Proper authority – Notice – Quorum – Chairman of meeting – Minutes of meeting – Proxies- Voting – Resolutions – Ordinary – Special – Resolution requiring special notice.	The students can 1. be provided basic knowledge of meetings of the company. 2. learn about minutes of the meeting, proxies, voting power in the meeting. 3. understand about resolution and special notice.	15
5	Winding up -Meaning of Winding up – Modes of winding up – Voluntary winding up – Types of voluntary winding up – Members voluntary winding up -Creditors voluntary winding up – Winding up by the court – Consequences of winding up.	The students can 1. learn the procedure for winding up of company. 2. recognize different types of winding up. 3. be able to know compulsory winding up of company by court.	15

Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Elements of company Law	N.D.Kapoor	2014 (29)	Sulthan Chand & Sons, New Delhi
2	Principles of Company Law	M.C.Shukla,S.S.Gulshan	2005 (9)	Sulthan Chand & Sons, New Delhi

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Elements of company Law	N.D.Kapoor	2014 (29)	Sulthan Chand & Sons, New Delhi
2	Principles of Company Law	M.C.Shukla,S.S.Gulshan	2007 (9)	Sulthan Chand & Sons, New Delhi
3	Company Law	Ashok Bagrial	2009 (10)	Vikas Publishing House, New Delhi.

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SEMESTER VI

Programme: UG	Subject: Commerce
Course code: 19UCOE61	Course Title: Income Tax Law and Practice-II
Category: Major Elective 2	Credits: 3

Objectives:

1.
- To impart the students to know the procedure for assessment and types of assessment.
2.
- To enable the students to understand the computation of tax liability of individuals

Unit	Detailed Syllabus	Outcomes	Hours
1	Income from Capital Gain: Capital Assets –Meaning - Kinds - Transfer of capital assets - Procedure for computing Capital Gain - Cost of acquisition - Cost of improvement -Determining STCG and LTCG -Determining indexed cost for acquisition and improvement Types – Exemptions – Computation – Problems in computation of Capital Gain.	The students can 1. able to know on capital assets in detail 2. able to understand the procedure for preparation of STCG 3. understand the procedure for preparation of LTCG	18
2	Income under the head other sources: Introduction - Other Income chargeable under this Head - Dividend - Interest on Securities-Casual Income – Deduction to be made from Income from Other Sources - Computation – Problems.	The students can 1. able to know about income from other sources in detail 2. able to understand the Preparation of Dividend incomes 3. able to understand the Preparation of Casual incomes.	18
3	Set-off and carry forward of losses: Introduction - Scheme of set-off and carry forward of losses – Intra-head, Inter-head set off - Order of set-off - Carry forward and set-off speculation loss - Losses under the head Capital gain - Losses in respect of owning and maintaining of race horses.	The students can 1. able to know about intra head and inter head set off losses 2. able to know about carry forward of losses 3. acquire knowledge on speculation losses in detail	18
4	Deduction from Gross total Income: Introduction - Deduction under section 80C- 80G - Problems - Procedures for Assessment – Returns – Types of returns – Types of Assessment – Tax Deducted at source.	The students can 1. learn the procedure for assessment. 2. understand the meaning of filing of IT returns and various types of returns. 3. be able to do the Preparation of set off and carry forward of various losses.	18
5	Assessment of Individual and AOP: Introduction - Computation of total income of an individual - Computation of taxable income-Computation of Tax Liability -Relief of Income Tax- Taxability of a member of AOP - Problems including computation of tax.	The students can 1. understand the Computation of grosstotal income of an individual. 2. know the Computation of taxable income. 3. understand the Computation of tax liability.	18

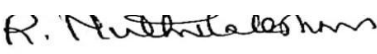
Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Income Tax Theory, Law and Practice	T.S.Reddy and Y.Hari Prasad Reddy	2019 (1)	Margham Publications, Chennai
2	Income tax Law and Accounts	Dr. H.C. Mehrotra and Dr. S.P. Goyal	2018 (36)	Sahitya Bhawan Publications, Agra.

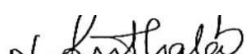
Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Income Tax Law and Practice	Pagare, Dinakar	2018 (17)	Sulthan Chand & Co., New Delhi.
2	Income Tax Law and Practice	T.Srinivasan, Mayilvaganan	2014 (1)	Science Technology Publication, Chennai.
3	Income Law and Practice	V.P.Gaur, D.B.Narang, Pooja Ghai and Rajeev Puri	2016 (29)	Kalyani Publishers, New Delhi

*For Problem paper: 40% marks for theory and 60% marks for problems


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SEMESTER VI

Programme: UG	Subject: Commerce
Course code: 19UCOE62	Course Title: Financial Services
Category: Major Elective 2	Credits: 3

Objectives:

1.
- To enable the students to learn the importance of financial services in India
2.
- To impart the students to know about leasing hire purchase and stock market

Unit	Detailed Syllabus	Outcomes	Hours
1	Indian Financial System: Introduction – Financial Market - Money Market – Instrument - Call or Notice Money Market - Bill Market -Certificate of Deposit - Commercial Paper - Treasury Bill Market - Equity Market - Debt Market - Financial Services - Meaning and Significance – Functions - Evolution of Financial Services in India - Regulating Authorities of Financial Services.	The students can 1. able to understand the fundamentals of Indian Financial System. 2. able to know about Treasury Bill Market, Equity Market and Debt Market 3. able to know about the Regulating Authorities of Financial Services.	18
2	Merchant Banking: – Meaning - Origin - Scope Activities - Functions - Issue Management Primary Market Issue Management - Public Issue - Right Issue - Private Placement - Issue Manager -- Cost of Public Issue - Pricing of Public Issue.	The students can 1. able to understand the basic concepts of merchant banking. 2. able to know about the scope and functions of merchant banking. 3. have a clear idea about Primary Market Issue Management.	18
3	Mutual Fund: Meaning - Evolution of Mutual Funds – Growth of Mutual Funds - Mutual Fund Organization - Advantages Of Mutual Fund -Types of Mutual Fund Scheme - Financial Risk - Performance Measures of Mutual Fund - The Treynor Measure - Sharpe Measure - Jenson Model - Eugene Fama Model - Methods of Online Mutual Fund.	The students can 1. able to understand the evolutionof mutual funds. 2. able to know about Performance Measures of Mutual Fund. 3. able to know about Mutual Fund Taxation in India andGrowth of Mutual Fund.	18
4	Leasing and Hire Purchase: Meaning - Classification of Lease - Financial Lease - Operating Lease - Sales and Lease Back - Direct Lease - Single Investor Lease - Leveraged Lease - Domestic Lease and International Lease - Features of Hire Purchase- Comparing Hire Purchase and Lease- Evolution of Hire Purchase – Growth of Hire purchase in India.	The students can 1. have a clear idea about classification of Lease. 2. understand the features and evolution of Hire Purchase 3. understand about sources of Law on Hire Purchase	18
5	Factoring and Credit Rating: Meaning – Definition – Mechanism –Characteristics - RBI guidelines for Factoring – Parties to the Factoring - Types of Factoring – Advantages – Disadvantages - Factoring Vs Bills discounting - Impact on Balance Sheet. Credit Rating.	The students can 1. be able to understand about factoring. 2. understand the types of factoring. 3. be able the know about the RBI guidelines for factoring.	18

Text Books:

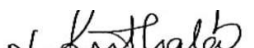
S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Financial Market and Services	Gordon. E., Natarajan. K.	2009 (5)	Himalaya Publishing House, New Delhi
2	Financial Services and System	Gurusamy.S.	2012 (2)	Tata Mc Graw – Hill Publishing Co. Ltd, New Delhi

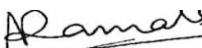
Reference Books

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Financial Services	Dr.V.Radha	2004 (1)	Prasanna Publications,Chennai
2	Financial Services	D.Joseph Anbarasu, V.K.Boominathan, P.Manoharan, G.Gnanaraj	2003 (1)	Sultan chand & Sons,New Delhi
3	Merchant Banking and Financial Services	Gurusamy.S.	2013 (1)	Tata Mc Graw – Hill Publishing Co. Ltd,New Delhi


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SEMESTER VI

Programme: UG	Subject: Commerce
Course code: 19UCOE63	Course Title: Introduction to Database Management System
Category: Major Elective 2	Credits: 3

Objectives:

1. To enable the students to know database management system
2. Students can understand the logical factors of database management system

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction to Database Management System: Definition and quality of information - Information process in file based data management – Advantages - Organisation of database - Characteristics of database - Functions of Database Management System - Components of Database Management System.	The students can 1. able to understand the fundamentals of DBMS in detail 2. able to know about the functions of DBMS 3. able to know about the components of DBMS	18
2	Data Model: Basic understanding of hierarchical model - Network model -Relational model - ER model - Object oriented model - Advantages and disadvantages of various data model - Components of ER model – Entities – Attributes - Relationship.	The students can 1. able to understand the fundamentals of Data model 2. able to know about the components of ER model 3. have a clear idea about advantages and disadvantages of various data model	18
3	Structured Query Language: Introduction to Oracle 9 - Features of Oracle - Overview of SQL - Types of SQL statement – DDL – DML – DQL – DCL – TCS - SQL Operators – Tables –Views – Index – Creating – Modifying - Deleting table - Creating views - Data query -Manipulation - Operation with views.	The students can 1. able to understand the SQL queries. 2. understand about types of SQL statements. 3. Able to creating tables, views and index.	18
4	Queries and Sub queries: Retrieving data from data base management - Tables using the select statement - Using the where clause, group by clause, having clause and order by clause -correlated sub-queries - aggregate functions provided by SQL - Joins and unions operations.	The students can 1. able to have a clear idea about queries and sub-queries. 2. able to retrieving data from DBMS. 3. able to know SQL joints and unions operations.	18
5	Database Security: Data security risks -Dimension of data base security – Roles and properties - Granting and revoking privileges and roles - Native or parametric end users - Sophisticated end users - Stand alone end users.	The students can 1. Database security risk are well known by students 2. able to know about roles and privileges of SQL. 3. able to know about parametric end users, sophisticated end users and stand alone end users.	18

Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Database Management System	Alex, leon and Mathews	2000 (1)	Vikas Publications, New Delhi
2	Database Management System	Arun K. Majumdar	2000 (1)	Tata Mc-Graw Hill, New Delhi

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Database Management System	Alex, leon andMathews	2002 (1)	Vikas Publications, New Delhi
2	Database Management System	Arun K. Majumdar, Bhattacharya	2002 (1)	Tata Mc-Graw Hill, New Delhi
3	Database Management System	Gerald V.Post	2002 (2)	Tata Mc-Graw Hill, New Delhi

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Sri Sarada College for Women, Tirunelveli 627011 (Autonomous)
Degree: B.Com (CS) Subject: Commerce (Corporate Secretaryship)
Programme Structure (2019 - 2022) Batch

Sem	Part	Category	Course code	Course title	Hours/week			Credits
					L	P	T	
1	I	Language	19P1TB1/ 19P1SB1	Tamil/Sanskrit	6	0	6	4
1	II	Language	19P2EB1	General English I	6	0	6	4
1	III	Core – 1	19UCCC11	Principles of Accounting	5	0	5	4
1	III	Core – 2	19UCCC12	Business Organisation	5	0	5	4
1	III	Allied I	19UCCA11	Company Law I	6	0	6	3
1	IV	Common	19UCES11	Environmental Studies	2	0	2	2
				Sub Total	30	0	30	21
2	I	Language	19P1TB2/ 19P1SB2	Tamil/Sanskrit	6	0	6	4
2	II	Language	19P2EB2	General English II	6	0	6	4
2	III	Core -3	19UCCC21	Financial Accounting II	5	0	5	4
2	III	Core – 4	19UCCC22	Principles of Management	5	0	5	4
2	III	Allied II	19UCCA21	Company Law II	6	0	6	3
2	IV	Common	19UCVE21	Value Based Education	2	0	2	2
				Sub Total	30	0	30	21
3	III	Core – 5	19UCCC31	Business Accounting	6	0	6	4
3	III	Core – 6	19UCCC32	Business Mathematics	5	0	5	4
3	III	Core – 7	19UCCC33	Modern Banking	5	0	5	4
3	III	Core - 8	19UCCC34	Office Management & Communication	5	0	5	4
3	III	Allied III	19UCCA31	Company Secretarial Practice	3	0	3	3
3	IV	Non Major Elective – I	19UNCC3A	Principles of Marketing	2	0	2	2
		Non Major Elective - I	19UNCC3B	Consumer Awareness	2	0	2	2
3	III	Skill Based – I	19UCCS31	Soft Skills And Career Actualization	4	0	4	4
3	IV	Common	19UCYP31	Yoga Theory and Practices	-	0	-	1
				Sub Total	30	0	30	26
4	III	Core -9	19UCCC41	Partnership Accounting	6	0	6	4
4	III	Core -10	19UCCC42	Business Statistics	5	0	5	4
4	III	Core -11	19UCCC43	Capital Market	5	0	5	4
4	III	Core -12	19UCCC44	Principles of Insurance	5	0	5	4
4	III	Allied- IV	19UCCA41	Corporate Finance	3	0	3	3
4	IV	Non Major Elective II	19UNCC4A	Human Rights	2	0	2	2
		Non Major Elective - II	19UNCC4B	Entrepreneurship Development	2	0	2	2
4	III	Skill Based II	19UCCS41	Dynamics of Entrepreneurship Development	4	0	4	4
4	IV	Common	19UCDE41	Computer for Digital Era	-	0	-	1
4	V	Extension Activity	19UNCC41/19UNSS41/19UYRC41/19URRC41/19UPESY41/19UCCC41/19USSS41/19UCGC41	Extension Activity (NCC/NSS,YRC/RRC/PESSY/CCC/SSS/CGC)	-	0	-	1
				Sub Total	30	0	30	27
5	III	Core -13	19UCCC51	Corporate Accounting	6	0	6	4
5	III	Core -14	19UCCC52	Cost Accounting	6	0	6	4
5	III	Core -15	19UCCC53	Business Law	5	0	5	4
5	III	Core -16	19UCCC54	Income Tax Law & Practice I	5	0	5	4
5	III	Core -17	19UCCCP51	Commerce for Competitive Examinations & Project	6	0	6	6
5	IV	Skill Based – III	19UPDC51	Personality Development	2	0	2	1
				Sub Total	30	0	30	23
6	III	Core -18	19UCCC61	Company Accounts	5	0	5	4
6	III	Core -19	19UCCC62	Management Accounting	5	0	5	4
6	III	Core -20	19UCCC63	Industrial Law	5	0	5	4
6	III	Core -21	19UCCC64	Auditing	4	0	4	4
6	III	Core – 22	19UCCC65	Income Tax Law & Practice II	5	0	5	4
6	III	Core – 23	19UCCC66	Application of Tally in Accounting	4	2	6	4
				Sub Total	28	2	30	24
				Total	178	2	180	142

- For problem papers 40% for theory and 60% for problems.
- Total Credits – 142 (including the credit for yoga and computer for digital era)

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Dr. A. Aruna Devi

V. Sangeetha
Dr. V. Sangeetha

N. Lavanya
Smt. N. Lavanya

N. Kamala
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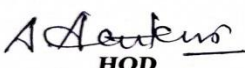
Degree – UG, Subject: Department of Commerce (Corporate Secretaryship)

PROGRAMME OUTCOMESS (POS):

PO1	Practical Applications on accounting principles to solve real time problems.
PO2	Ability to have knowledge on laws related to the management of the companies.
PO3	Provides knowledge on enrolment of ACS, CMA and CA courses.
PO4	Ability to have co-operation and mobilizes team work and leadership.
PO5	Increases the knowledge on Digital learning process.

PROGRAMME SPECIFIC OUTCOMESS (PSOs):

PO1	Helps in pursuing higher studies
PO2	Acquiring sufficient knowledge in respective courses.
PO3	Acquire the knowledge of critical thinking and reasoning.
PO4	Helps in reducing the research gap.
PO5	Increasing employability skills


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Ariakulam, Thoothukudi NH, Maharajanagar Post, Tirunelveli-627011, TamilNadu
SEMESTER I

Programme: UG	Subject: PRINCIPLES OF ACCOUNTING
Course code: 19UCCC11	Course Title: B.Com (CS)
Category: Core 1	Credits: 4

Objectives:

1. To acquire conceptual knowledge of financial accounting.
2. To impart skills for recording various kinds of business transactions.
3. To make the students to know about the various methods of calculating depreciation.

Out Come:

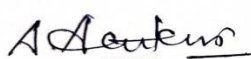
After having completed this course the candidates are able

1. To prepare financial statements and identify the purposes of preparing the statements.
2. To ascertain the financial position of Business.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Accounting – Definition – Branches of Accounting – Functions of Accounting – Advantages – Limitations – Book keeping – Accounting Principles – Concepts and Conventions – Accounts and classification – Double entry system of Accounting – Journal – Ledger – Subsidiary Books – Trial balance – Final Accounts- Trading Profit and loss account and Balance sheet.	15
2	Bank Reconciliation Statement – Rectification of Errors – Suspense Account -Debit or credit balances- Reasons for discrepancies- Omission of entry -Overdraft- Adjustment of cash book	15
3	Bills of Exchange - Essentials – Types of negotiable instruments -Kinds of bills - Advantages of bill - Bill books-Accounting Treatment – Drawing accepting and discharging of bills - Discounting of bills - Endorsing - Dishonoring- Renewal of the Bill – Noting Charges – Retiring the Bill – Insolvency – Accommodation Bill	15
4	Depreciation – Meaning – Causes – Methods of recording- calculating methods- Change in methods- Depreciation policy–Choice of suitable method - Straight Line Method – Written Down Value Method – Annuity Method – Sinking Fund Method – Insurance Policy Method.	15
5	Single Entry system – Meaning – Salient Features – Limitations of single entry - Defects – Difference between Single entry and Double entry System- Ascertainment of profit -	15

Text Books:

S.No	Title of the Book	Author	Edition Year	Publication
1	Fundamentals of Advanced Accounting	R.S.N.Pillai Bagavathy S.Uma	1 st Edition, 2014	S.Chand & Company, New Delhi.
2	Advanced Accountancy	R.L.Gupta & M.Radhaswamy	17 th Edition, 2014	Sultan Chand & Sons, New Delhi
3	Financial Accounting	T.S.Reddy & Dr.A.Murthy	1 st Edition, 2014	Margham Publications, Chennai


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SEMESTER I

Programme: UG	Subject: BUSINESS ORGANISATION
Course code:19UCCC12	Course Title: B.Com (CS)
Category: Core 2	Credits: 4

Objectives:

1. To make the students to understand business and its role in society.
2. To enable the student to undertake business activities.
3. To make the students to know about the types of business organisations.

Out Come:

After having completed this course the candidates are able

1. To understand the main working aspects of organizations as a part of society
2. To analyse the economic environment of organizations by development of conceptual areas such as Industry, Human Resources and Production.

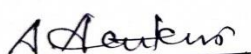
nits	Detailed Syllabus (all units of same size and duration)	Hours
1	Nature and scope of Business: Concept of Business-human occupations- Profession,Employment and business-Divisions of business-Industry and Commerce-Business system-Objectives of business-- Economic Objectives-Social Objectives-Human Objectives-National Objectives-Essentials of a successful business- Qualities of a good businessman	15
2	Types of Business organizations: Sole proprietorship- Partnership-Joint Stock company-Co-operatives-Nonprofit business organizations under the Societies Act and Trusts-Public sector business units-Public utilities –Unique features of each one and their merits and demerits. -	15
3	Partnership: Kinds of firms-Distinction between Sole Trader and Partnership-Kinds of partners-Basic legal requirement in registration ofpartnership firm-Comparison with sole proprietorship- Partnership deed and its contents, Rights and duties of partners-Dissolution-Suitability of partnership.	15
4	Company: Kinds of companies-Private company-Public company-Comparison withpartnership firm-Multinational Companies- Meaning-Definition- Advantages- Disadvantages-Features-Impact of Multinational Companies in India.	15
5	Co-Operative Organization: Formation of Co-operative organization under theSocieties Registration Act and Tamil Nadu Co-operative Societies Act-Management of Co-operative organizations-Co-operatives versus Companies-Cooperatives versus Partnership-Types of Co-operatives-Co-operative Movement in India.	15

Text Books:

S.No	Title of the Book	Author	Edition Year	Publication
1	OrganisationalBehaviour	K.Aswathappa	1 st edition 1991, reprint 2011	Himalaya Publishing House,
2	Business Policy and Strategic Management	Francis Cherunilam	4 th edition,2005	Himalaya Publishing House
3.	Organizational Behaviour	L.M.Prasad	4 th edition 2006	Tata McGrawHill Publishing Co.Ltd.

Reference Books:

S.No	Title of the Book	Author	Edition Year	Publication
1	OrganisationalBehaviour	V.Subramanian Sharma	3 rd edition,2012	AmmmolPubication SPVY Ltd
2.	OrganisationalBehaviour	Uma Sekaran	2 nd edition, 2005	Tata McGrawHill Publishing Co.Ltd.


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SEMESTER I

Programme: UG	Subject: COMPANY LAW I
Course code:19UCCA11	Course Title: B.Com(CS)
Category: ALLIED – 1	Credits: 3

Objectives:

1. To know the rules and regulations of the company creations
2. To understand the memorandum of Association and Articles of Association
3. To know the prospectus and membership of the company

Outcome:

After having completed this course the candidates are able

1. To identify the Legal duties and responsibilities of the officials of the company..
2. To understand the rules and regulations to establish an enterprise.

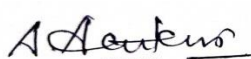
Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Companies Act 2013 , - Meaning and definition of a company, characteristics – Advantages and disadvantages of companies- company distinguished from partnership – kind of companies – Private company vs Public company – conversion.Difference between Joint Stock Company and Partnership firm.	18
2	Formation of a company – promotion, incorporation –Documents to be submitted for registration - Procedure for incorporation - Duties of secretary in promotion and incorporation - Capital subscription - commencement of business – promoters – legal status of promoter-functions of promoter – preliminary contract.	18
3	Memorandum of Association – Definition-contents – Name Clause- Registered office clause- Object Clause - Liability Clause- Capital clause- Association Clause - alteration of memorandum of association –Doctrine of ultra-wires- Articles of association – Meaning - Definition -contents- Provision - Notice to registrar- alteration of articles - Difference of memorandum and articles - Doctrine of indoor management – Doctrine of constructive notice.	18
4	Prospectus – definition – Deemed prospectus - contents – liability – misstatement in prospectus – remedies for misstatement – statement in lieu of prospectus – Duties of secretary in respect of issuing of prospectus - listing of securities – underwriting of shares - Advantages and Disadvantages .	18
5	Membership in a company – Meaning of a shareholder - difference between member and shareholder – who can become a member – Methods of becoming a member - Liability of members – rights of members – Duties of members – register and index of members .	18

Text Books:

S.No	Title of the Book	Author	Edition Year	Publication
1	Companies Act,2013(Supplement to Elements of Mercantile Law)	N.D.Kapoor	36 th Edition,2014	Sultan Chand & Sons, New Delhi
2	Company Law	K.Ashok, Bagrial	12 th Edition,2007	VikasPublications Private Limited, Noida
3	Company Law – I	J.Santhi	1 st Edition 2018	Margham Publications, Chennai

Reference Books.

S.No	Title of the Book	Author	Edition Year	Publication
1	Company Law & Secretarial Practice	J.Santhi	1 st Edition,2018	Margham Publications, Chennai
2	Company Law	PMS.AbdulCaffor. S.Thothari	2 nd Edition,2018	Vijay Nicole Imprints(P), Ltd.


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SEMESTER I

Programme: UG	Subject: Environmental Studies
Course code:19EVS11	Course Title: B.A/B.Com/B.Sc/BBA
Category: Part IV	Credits: 2

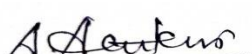
Objectives:

1. To acquire conceptual knowledge on environment.
2. To impart knowledge on safeguarding eco system.
3. To make the students to know about the various Pollution .

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	UNIT I: THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES Definition, - Meaning of Environment - Characteristics of Environment - Types of Environment - Need for Environmental Education- scope and importance Natural resources and associated problems: a) Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. b) Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management. c) Mineral resources: Use and exploitation, environmental effects. d) Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems. e) Energy resources: Growing energy needs, renewables and non-renewable energy sources, alternate energy sources. f) Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification	6
2	UNIT II:ECOSYSTEMS - Concept of Eco System- Structure of Eco System- Functions of eco system- Terrestrial Eco System- Forest Ecosystem- Grassland Ecosystem - Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries) Energy flow in the ecosystem - Ecological succession Food Chains, Food Webs and Ecological Pyramids.	6
3	UNIT III: BIODIVERSITY AND ITS CONSERVATION -Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of India - Values of Biodiversity -Biodiversity at global, national and local levels -India as a mega-diversity nation - Hot-Spots of biodiversity -Threats to biodiversity -Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.	6
4	UNIT IV: ENVIRONMENTAL POLLUTION -Definition- Causes, effects and control measures of- Air Pollution - Water Pollution - Soil Pollution - Marine Pollution - Noise Pollution-Nuclear Hazards - Thermal Pollution - Solid Waste Management Disaster Management: Floods, earthquake, cyclone and landslides - Recycling.	6
5	UNIT V: SOCIAL ISSUES AND THE ENVIRONMENT - Climatic change, global warming, acid rain, ozone depletion-Wasteland reclamation-Consumerism and Waste products, use and through plastics - Resettlement and Rehabilitation -Environment Protection Act -Air (Prevention and Control of Pollution) Act - Water (Prevention and Control of Pollution) Act -Wildlife Protection Act -Forest Conservation Act - Population Explosion — Family Welfare Programme - Human Rights - Role of information Technology in Environment and Human Health.	6

Reference Books:

S.No	Title of the Book	Author	Edition Year	Publication
1.	Basics of Environmental Science	G.S. Vijayalakshmi, A.G. Murugesan and N. Sukumaran. 2006.	2014	Manonmaniam Sundaranar University Publications
2.	Environmental Biology,	Agarwal. K.C.	2018	Nidi Publications Limited, Bikaner
3.	Environmental Chemistry	. A.K.De	2005	Wiley Eastern Limited, India
4.	Environmental Studies	N.Arumugam and V.Kumaresan	2015	Saras Publication, Tamilnadu


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SEMESTER II

Programme: UG	Subject: FINANCIAL ACCOUNTING
Course code:19UCCC21	Course Title: B.Com (CS)
Category: Core 3	Credits: 4

Objectives:

1. To enhance critical and analytical approach to different types of accounting.
2. To provide real life opportunities to manage business accounts.
3. To make the students to gain knowledge on Financial Accounting.

After having completed this course the candidates are able

- OutCome
1. To prepare accounts for Non-Trading Concerns.
 2. To describe the main elements of financial accounting information's namely, assets, liabilities, income, expenditures, profits and losses.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Consignment – Account Sales – Treatment of Bad Debts – Del- Credere Commission – Over Riding Commission – Difference between Consignment and Sales – Valuation of Unsold Stock – Recurring and Non- recurring expense – Abnormal, Normal Loss – Invoice Price Model.	15
2	Accounts of Non- Trading Concern – Meaning – Capital and Revenue Expenditure – Capital and Revenue Receipts – Difference between Capital and Revenue items – Income and Expenditure Account – Receipts and Payments Account – Balance Sheet.	15
3	Joint Venture – Meaning – Difference between Joint Venture and Partnership, Difference between Consignment and Joint Venture – Methods of Maintaining Accounts – Own Book Model (Joint Bank Account) – Separate Book Model – Memorandum Joint Venture	15
4	Account Current and Average Due Date – Account Current - methods Forward method- - Backward Method - Product Method- classification of number of days - Method of calculating average due date -Red ink interest - Periodic balance method- Average due date - calculations - Utility - problems.	15
5	Insurance Claims – Introduction - Loss of Stock – Loss of Profit - Loss of property - Average clause – Self Balancing Ledgers - Debtors ledger - Creditors ledger - general ledger – Sectional Balancing System - Meaning- Journal Entries in Sales and Purchase Ledger- Transfer from one ledger to another	15

Text Books:

S.No	Title of the Book	Author	Edition Year	Publication
1	Fundamentals of Advanced Accounting	R.S.N.Pillai Bagavathy S.Uma	1 st Edition,2014	S.Chand & Company, New Delhi.
2	Advanced Accountancy	R.L.Gupta & M.Radhaswamy	17 th Edition,2014	Sultan Chand & Sons, New Delhi
3	Financial Accounting	T.S.Reddy & Dr.A.Murthy	1 st Edition, 2014	Margham Publications,Chennai

Reference Books:

S.No	Title of the Book	Author	Edition Year	Publication
1	Essentials of Financial Accounting	Bhattacharyya Asish.K	3 rd edition,2012	PHI Learning, New Delhi
2	Advanced Accountancy Volume – I	T.S.Reddy & Dr.A.Murthy	1 st Edition, 2010	Margham Publications,Chennai
3	Advanced Accountancy Volume – I	S.P.Jain & Narang	17 th edition,2011	Kalyani Publishers, New Delhi


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SEMESTER II

Programme: UG	Subject: PRINCIPLES OF MANAGEMENT
Course code:19UCCC22	Course Title: B.Com (CS)
Category: Core 4	Credits: 4

Objectives:

1. To familiarize the students with concepts and principles of management.
2. To impart knowledge on the functions of management among the students.
3. To make the students to know about the importance of coordination and control.

Outcome:

After having completed this course the candidates are able

1. To identify and evaluate social responsibility and ethical issues involved in Business situations.
2. To practice the functions of management, namely planning, organizing, directing and controlling.

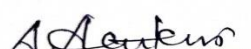
Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Introduction to management- Meaning and definition of management-Functions of management- Managerial skills –Levels of management-Roles of manager-Management as a science or art-contributions to management by F.W.Taylor, Henry Fayol, Elton Mayo and Peter.F.Drucker.	15
2	Planning and Decision making- Planning-Importance of planning-Process of planning- (Objectives-Policies-Procedures-Strategies and Programmes) Steps in Planning-Obstacles to effective planning- Strategic planning - Decision making- Types of decisions-Process of decision making-Decision tree - Limits of Rational Decision making.	15
3	Organising - Organisation-importance-Principles of organizing- Organisational structure-Line and functional- Organisation charts and manuals Departmentation- Bases- Delegation- Meaning and definition- Principles of delegation – Authorities and responsibilities - Centralisation and Decentralisation.	15
4	Directing & Communication- Directing-Importance and Principles of Directing. Motivation-Theories of motivation - Maslow- Herzberg Theories - Communication Process-Principles of effective communication - Barriers to effective communication - Overcoming the obstacles in communication	15
5	Co-ordination and control- Co-ordination-Importance-Requirements of effective co-ordination – Control-nature-Basic control process - Essentials of effective Control system- Problems in control process -Control techniques (Traditional and modern) – Effective control.	15

Text Books:

S.No	Title of the Book	Author	Edition Year	Publication
1	Principles of Management	P.C.Tripathi P.N.Reddy	8 th Edition,2011	TataMcGraw hill Publilcations, New Delhi
2	Principles of Management Volulme- I	S.N.Maheswari K.Maheswari Sharad	7 th Edition,2012	Sultan Chand & sons, New Delhi
3	Principles and Practice of Management	L.M.Prasad	9 th Edition,2015	Sultan Chand & Sons, New Delhi

Reference Books:

S.No	Title of the Book	Author	Edition Year	Publication
1	Management Theory and Practice	Dr.C.B.Gupta	3 rd edition, 2009	Sulthand Chand & Sons New Delhi
2	Principles and Practice of Management	P.S.Narayana V.S.P.Rao	13 th edition,2009	Konark Publishing House Pvt Ltd, Bangalore


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SEMESTER II

Programme: UG	Subject: COMPANY LAW II
Course code: 19UCCA21	Course Title: B.Com (CS)
Category: ALLIED-2	Credits: 3

Objectives:

1. To know the share capitals and borrowing powers
2. To make the students to understand the regulatory frameworks of companies.

Out Come:

After having completed this course the candidates are able

1. To deal with Securities Market.
2. To identify the cost-effective investment methods.

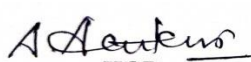
Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Share capital – Types of share capital – Stock and Shares – Types of shares – Modes of issues of shares - Application – Allotment – Calls on Shares – Share Certificate – transfer of Shares – forfeiture of Shares – Reissue of Forfeited Shares- issue of Bonus Shares- Rights issue- Public offer- Private placement.	18
2	Borrowing powers – Lawful borrowing - Restriction on powers of the board - Disclosure requirements - ultra vires borrowing – methods of borrowing - consequences of unauthorized borrowings- debentures – kinds – creation of charges – fixed and floating charges – registration of charges.	18
3	Directors – appointment – position – qualification, – disqualification removal – duties of directors – powers – board meetings liability of directors – Procedure for holding first meeting of board of directors - Board resolution - Minutes of the board meetings - managerial remuneration - managing directors – rights and duties.	18
4	Dividend – Rules regarding dividend – penalty for default – payment of interest out of capital – Appointment of Auditors – Removal – Remuneration – rights, powers and duties of auditors.	18
5	Winding up – Modes of winding up – Winding up by tribunal - Contents of the petition for winding up - Power of tribunal - official liquidator – duties and powers of liquidators -Procedure for voluntary winding up. Duties of Company secretary in winding up of a company- Declaration of Solvency.	18

Text Books

S.No	Title of the Book	Author	Edition Year	Publication
1	Companies Act,2013(Supplement to Elements of Mercantile Law)	N.D.Kapoor	36 th Edition,2014	Sultan Chand & Sons, New Delhi
2	Company Law	K.Ashok, Bagrial	12 th Edition,2007	VikasPublications Private Limited, Noida
3	Company Law – II	J.Santhi	1 st Edition 2018	Margham Publications, Chennai

Reference Books:

S.No	Title of the Book	Author	Edition Year	Publication
1	Company Law & Secretarial Practice	J.Santhi	1 st Edition,2018	Margham Publications, Chennai
2	Company Law	PMS.Abdul Caffor. S.Thothari	2 nd Edition,2018	Vijay Nicole Imprints(P), Ltd.
3	Company Law	Dr.G.K.Kapoor	3 rd Edition,2017	Sulthan Chand Private Limited


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SEMESTER III

Programme: UG	Subject: COMMERCE (CS)
Course Code: 19UCCC31	Course Title: BUSINESS ACCOUNTING
Category: Core 5	Credits: 4

Objectives:

1. To know the system of Accounting followed in Branches and Departments of business organization.
2. To know the pattern of recording transactions in Hire Purchase and Installment Purchase systems.
3. To understand the accounting treatment to be followed at the time of Insolvency of an individual.

Unit	Detailed Syllabus	Outcomes	Hours
1	Branch and Departmental Accounting: Meaning – Objectives - Types of Branches - Dependent Branches - Accounting in respect of dependent branches- Debtors system – Invoice price Method (excluding Stock and Debtor’s system) – Departmental Accounts –Methods and Techniques – Departmental Trading - Profit and Loss Accounts – Inter Departmental Transfers.	The students can 1. able to learn the number of transactions occurred in the branch 2. able to find out the nature of expenses incurred in the branch and its requirement. 3. familiarize regarding the cash position of the branch	18
2	Royalty Account: Meaning – Treatment in final accounts - Technical terms - Specimen journal entries - Sub-lease - Meaning-Accounting – Specimen journal entries -Minimum rent - Short workings – Recoupment of short working – Strike - Sublease.	The students can 1. understand the meaning of the term “Royalty” 2. familiarize with terminology related to Royalty Accounting. 3. understand the Accounting treatment in the books of Lessee and Lessor	18
3	Contract account: Meaning – Features – Types – Accounting Procedure - Work certified – Work Uncertified – Treatment of Profits – Work-in-progress.	The students can 1. be able to identify types of contract account 2. know to compute accounting procedure. 3. be able to find out work certified, work uncertified and work-in-progress.	18
4	Hire Purchase and Installment System: Meaning - Definition – Features - Difference between hire purchase and installment system-Calculation of Cash price and interest – Default and Repossession.	The students can 1. understand the difference between hire purchase and installment 2. be able to calculate the cash price and interest 3. know to prepare hire purchase account	18
5	Insolvency Accounts: Meaning - Insolvency Act - Procedure under insolvency act - Difference between insolvency of an individual and partnership - Difference between balance sheet and Statement of affairs - Insolvency of an individual – Statement of Affairs – Deficiency Account.	The students can 1. understand the procedure under Insolvency Act. 2. know the differences of insolvency of an individual and partnership. 3. be able to prepare Statement of Affairs and Deficiency Account	18

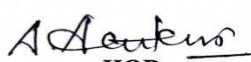
Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Fundamentals of Advanced Accounting	R.S.N.Pillai, Bagavathi & S.Uma	2008 (2)	S.Chand& Company Ltd., New Delhi
2	Advanced Accounting	T.S.Reddy & A.Murthy	2011(6)	Margham Publications, Chennai

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Advanced Accountancy	Chandra Bose	2010 (1)	PHI Learning (P) Ltd, NewDelhi.
2	Advanced Accountancy	Ravi Kishore	2014 (1)	Taxmann Allied Services(P) Ltd, New Delhi.
3	Advanced Accountancy	S.P.Jain&K.L.Narang	2017 (19)	Kalyani Publishers, NewDelhi

***For Problem paper: 40% marks for theory and 60% marks for problems**


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SEMESTER III

Programme: UG	Subject: COMMERCE (CS)
Course code: 19UCCC32	Course Title: BUSINESS MATHEMATICS
Category: Core 6	Credits: 4

Objectives:

- 1
- To provide basic knowledge of mathematical techniques applicable to business.
- 2
- To provide logical idea to find out practical solution for the managerial problems.
- 3
- To make the students to find solutions for the problems in mathematical aspects.

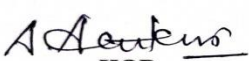
Units	Syllabus	Outcomes	Hours
1	Number systems and equations - Numbers- natural-whole-rational-irrational-real. Equations – linear-quadratic – solutions of simultaneous linear equations with two or three unknowns – solutions of quadratic equations – nature of the roots – forming quadratic equation.	The Students can understand, 1. The concept of business mathematics 2. The number systems. 3. The linear and quadratic equations.	15
2	Indices and Logarithm -Definition-Positive indices-Laws of indices-Negative indices-Zero and unity indices – Fractional indices. Logarithms – Definition –Properties of logarithms- Laws of logarithms-Common logarithm.	The Students can understand, 1. The Indices and Law of Indices. 2. The logarithms and law of logarithms. 3. The practical properties of logarithm.	15
3	Analytical geometry - Distance between two points in a plane-slope of a straight line – equation of straight line – point of intersection of two lines – applications (1) demand and supply (2) cost-output (3) break-even analysis	The Students can understand, 1. The important factors relevant to the analytical geometry. 2. The demand and supply, cost output, break-even analysis. 3. The equation of straight line.	15
4	Matrices –meaning-types-algebra of matrices-addition and subtraction-scalar multiplication – Multiplication of matrices- transpose of a matrix –Determinant – minors and co-factors –inverse of a matrix – solving simultaneous linear equations using matrix method	The Students can gain knowledge on, 1. The reliable part of determinants. 2. Algebra of matrices. 3. Minor and co-factors of matrices.	15
5	Commercial arithmetic –Simple interest-Compound interest- Depreciation. Discount – true discount – Discounting a Bill of exchange Banker’s discount – Banker’s Gain.	The Students can understand, 1. The process related to Commercial arithmetic like simple and compound Interest. 2. The sustainable knowledge of banker’s discount and banker’s gain. 3. The concept of discounting a bill of exchange.	15

Text Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1.	Business Mathematics Volume – I	Ravithenraj.J Duraisingh.V	2016 (1)	New Balaji Publications, Chennai
2.	Business Mathematics	D.C.Sancheti	2014 (11)	S.Chand & Sons, New Delhi
3.	Business Mathematics	S.P.Rajagopalan	2014 (2)	Vijay Nicole Imprints Pvt Ltd, Chennai

Reference Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1.	Business Mathematics	M.Manoharan & C.Elango	2002 (3)	Palani Paramount Publication, Palani.
2.	Business Mathematics	Soundarapandian. V.S	2002 (1)	Soundhar Publications, Kovilpatti


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SEMESTER III

Programme: UG	Subject: COMMERCE (CS)
Course code:19UCCC33	Course Title: MODERN BANKING
Category: Core 7	Credits: 4

Objectives:

1.
- To create an idea of modernbanking
2.
- To familiarize the students with the bankingactivities
3.
- To familiarize the students with the knowledge of the traditional bankingsystem.

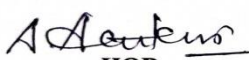
Units	Syllabus	Outcomes	Hours
1	Banker and Customer- Relationship between banker and customer-General &Special relationship – Rights of the banker – Negotiable instruments – Promissory note, Bill of exchange &Cheque (Meaning & Features) – Proper Drawing of the cheque – Crossing (Definition & Types) – Endorsement (Definition & Kinds) – Material alternation.	The students can understand, 1. The overall bankingprocess. 2. The utility of negotiableinstruments. 3. The procedure involved in materialalteration.	15
2	Banking System- Branch Banking and unit banking system - Group banking and chain banking - Deposit banking and mixed banking - Narrow banking -Universal banking - local area banking -Indigenous Bankers–Commercial Banks– Co-Operative Banks–Land development Banks – Industrial Development Banks - NABARD- EXIM Banks – Foreign Exchange Banks.	The students can understand, 1. The various types ofbanking. 2. The nature of commercial banks and its services. 3. The services of foreign exchangebanks.	15
3	Traditional Banking- Receiving Deposits– General Precautions–Kinds of deposits – Fixed – Current – Saving – Recurring & Others. Lending Loans & Advances – Principles of sound lending – forms of advances – loan, cash credit, over draft & purchasing and discounting of bills. Mode of charging security – lien, pledge, mortgage, assignment&hypothecation.	The students can understand, 1. The various types ofdeposits. 2. The lending policies ofbanks. 3. The mode of chargingsecurities.	15
4	Modernized Banking- Core banking–Home banking–Retail banking–Internet banking – Online banking and Offline banking – Mobile banking – Inter- Bank mobile payment service(IMPS)– Electronic Funds Transfer – ATM and Debit Card – Smart Card – Credit Card – E-Cash – RTGS.	The students can acquire knowledge on, 1. The idea of internetbanking 2. Online and offlinebanking. 3. Modern bankingservices.	15
5	Reserve Bank of India- Constitutions- Nationalization - Main Functions of Reserve Bank of India - Management of RBI– Reserve bank and agricultural credit - The Reserve bank and Industrial finance - Bill Market scheme - Methods of Credit Control.	The students can understand, 1. The constitution of Reserve bank of India. 2. The main functions of Reserve bank of India. 3. The methods of creditcontrol.	15

Text Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Banking Theory Law & Practice	E.Gordon & K.Natarajan	2015 (24)	Himalaya Publishing Ltd, New Delhi
2	Banking Theory Law & Practice	Dr.Radha	2012 (3)	Prasanna Publishers, Chennai.
3	Banking Theory Law and Practice	S.Guruswamy	2009 (2)	TataMcGrawHill, Noida

Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Banking Theory Law & Practice	R.Rajesh & T.Sivagnanasithi	2008 (8)	TataMcGrawHill, Noida
2	Banking Theory Law & Practice	S.M.Sundaram	2006 (4)	Sree Meenakshi Publications, Madurai


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SEMESTER III

Programme: UG	Subject: COMMERCE (CS)
Course code: 19UCCC34	Course Title: OFFICE MANAGEMENT& COMMUNICATION
Category: Core 8	Credits: 4

Objectives:

1.
- To study the importance of officelayout.
2.
- To study the techniques of OfficeManagement.
3.
- To know the methods to redress the grievances ofemployees.

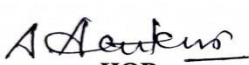
Units	Syllabus	Outcomes	Hours
1	Introduction - Modern Office - Office Management - Office Organisation - Office Accommodation and Layout - Office Environment - Furniture - Time Management - HandlingTelephones.	The students canlearn, 1. The importance of office environment. 2. The techniques of Office system. 3. The importance of time management.	15
2	Functions of office manager Organization of the Office Work - Mechanical equipments - Business or Office Correspondence - filing - Indexing - Record Administration - Agenda preparation for Meetings	The students can learn, 1. The functions of office manager to organize the officework.. 2. The usage of mechanical equipments inbusiness. 3. The necessity of administration of records andagenda.	15
3	Personnel management - Introduction- Objectives - Evolution of Personnel Management- Meaning and Definition- Scope- Characteristics of sound personnel management- Functions of personnel management.	The students can learn, 1. The function of personnel management. 2. The sources of recruitment. 3. The justification of performance appraisal.	15
4	Filing and Indexing –Meaning and importance,-essentials of good filing, centralized vs. decentralized filing, system of classification, methods of filing and filing equipment, Weeding of old records, meaning and need for indexing, various types of indexing	The students can learn, 1. Importance of goodfiling. 2. The different methods of filing and filingequipment. 3. The need and types ofindexing.	15
5	Communication - Communication Process - Model - Types of Communication -Essentials of effective communication - Barriers in Communication - Barriers in electronic communication modes.	The students can learn, 1. The types ofcommunication. 2. The electroniccommunication modes. 3. The Barriers incommunication	15

Text Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Research Methodology	SaravanaVel.P	2005 (16)	KitabMahal, New Delhi
2	Human Resource Management Text and Cases	Aswathappa.K	2013 (7)	McGraw-Hill Education, New Delhi
3	Business Communication	N.S.Raghunathan	2018 (1)	Margham Publications, Chennai

Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Office 2010	Editorial Team	2010 (1)	Tata McGraw Hill, New Delhi
2	Business Organisation & Management	C.B.Gupta	2009 (34)	Sulthan & Chand Pvt Ltd, Chennai


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SEMESTER III

Programme: UG	Subject: COMMERCE (CS)
Course code:19UCCA31	Course Title: COMPANY SECRETARIAL PRACTICE
Category: ALLIED III	Credits: 3

Objectives:

1.
- To gain the knowledge of the secretarial practice in various areas.
2.
- To understand the conduct of meetings and winding up procedures.

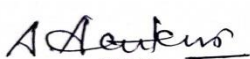
Units	Detailed Syllabus (All units of same size and duration)	Outcomes	Hours
1	Secretary –Definition - kinds of secretaries - function of secretaries–qualification– appointment – dismissal - legal positions, powers, rights, duties, and responsibilities.	The students can understand, 1. The proficiency of the company secretary. 2. The Know-how of corporate secretarial practice and its wide aspects. 3. The legal position, powers, duties, and responsibilities of the secretary.	9
2	formation of a company – Issue, Allotment, Calls, Forfeiture and Surrender of Shares - Duties of company secretary with regard to the issue and redemption of shares – Secretarial Practice relating to Dividend.	The students can develop, 1. The Interest in investment habit. 2. The knowledge on the duties of company secretary with the issue and redemption of shares. 3. The concept of secretarial practice related to dividend.	9
3	Issue and redemption of debenture – Debentures - Meaning Definition - Difference between shares and debentures - Types of debentures - Duties of company secretary with regard to the issue and redemption of debenture - borrowing powers of a company – public deposits – prevention of misuse of public deposits	The students can understand, 1. The types of debentures. 2. The duties of company secretary with the issue and redemption of debentures. 3. The borrowing powers of the company	9
4	Meetings –kinds of meetings–requisition of valid meeting–duties of the secretary in connection with board meeting – statutory meeting, extraordinary general meeting and resolution.	The students can understand, 1. The kinds of meetings. 2. The conduct of board meetings. 3. The idea and procedure of resolution.	9
5	Winding up –Meaning of winding up - Winding up and dissolution - Modes of winding up - procedure for winding up– Meeting of creditors - Appointment of committees- Duties of secretaries in respect of winding up procedures after winding up orders.	The students can learn, 1. The modes of winding up. 2. The appointment of committees for winding up. 3. The duties of secretaries regarding the winding up procedures.	9

Text Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Company Law & Secretarial Practice	J.Santhi	2018 (1)	Margham Publications, Chennai
2	Industrial Law	N.D.Kapoor	2009(10)	Sulthan Chand & Sons, New Delhi
3	Law Ethics & Communication	N.D.Kapoor Rajendra Pal C.B.Gupta	2009 (8)	Sulthan Chand & Sons, New Delhi

Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Company Law	J.Santhi	2018 (1)	Margham Publications, Chennai
2	Elements of Mercantile Law	N.D.Kapoor	2018 (36)	Sulthand Chand Publications, New Delhi


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SEMESTER III

Programme: UG	Subject: COMMERCE (CS)
Course code:19UNCC3B	Course Title : CONSUMER AWARENESS
Category: NON- MAJOR ELECTIVE -I	Credits: 2

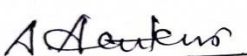
Objectives:

1.
- To create awareness regarding the intellectual property rights and consumer protection.
2.
- To avail the knowledge of better quality of living as consumers.

Units	Syllabus	Outcomes	Hours
1	Consumer -Consumerism-Types of consumers (age, sex, behaviour, place of residence, income) – objectives -Goods and services- types evolution and growth of consumer movement in India and Tamil Nadu.	The students can understand, 1. The types of consumers 2. The evolution and growth of consumer movement in India 3. The concept of consumerism.	6
2	Exploitation of consumer -Pricing, adulteration, information and labeling, duplication, artificial demand, Spurious goods, late deliveries, advertising, poor after sales service, warranty and services, fitness, not honouring terms and conditions, for sale and services, financial frauds, credit card frauds and product risks and remedies.	The students can get awareness regarding, 1. The terms and condition of after sale services. 2. The exploitation of consumers. 3. The credit card frauds.	6
3	Consumer Rights -Meaning and sources-Six rights of the consumers under Consumer Protection Act-Right to Safety-Information-Choice, be heard, Redressal and consumer education-Consumer Responsibility.	The students can acquire knowledge on, 1. Consumer rights. 2. The provisions relating to Safety Act. 3. Redressal and consumer education.	6
4	Consumer protection -Meaning-Need for consumer protection--Legal measures- Consumer Protection Act 1986– objectives - Special features of the Act-Three tier features of the Act-Three tier Redressal Agencies- District level, State level and National level. Consumer Protection (Amendment) Act 2003.	The students can get awareness on, 1.The special features of the Consumer Protection Act 1986. 2. The penalties in consumer protection act 1986. 3. The functions of three tier redressal agencies.	6
5	Procedures for complaints and Redressal Mechanism: Persons who can file a complaint - Period of limitation for filling a complaint - Procedure for filling a complaint - Model form of complaint - Model form of Appeal -with reference to goods and services- Consumer related cases.	The students can learn, 1. The model form of complaints. 2. The procedure for filling a complaint. 3. The model form of appeal with reference to goods and services.	6

Text Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Organisational Behaviour	Prasad.L.M	1984 (1), Reprint 2008	Sultan Chand publications
2	Consumer Protection and Satisfaction (Legal and Managerial Dimension)	Gulshan.S.S	2009 (4)	Caney Easting Limited, England
3	Consumer Behaviour and Marketing Strategy	Paul Peter.J Jerry Olson	2002 (4)	Tata McGraw Hill, Chennai


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SEMESTER III

Programme: UG	Subject: COMMERCE(CS)
Course code:19UNCC3A	Course Title: PRINCIPLES OF MARKETING
Category: NON- MAJOR ELECTIVE -I	Credits: 2

Objectives:

1.
- To acquire knowledge on functions ofmarketing.
2.
- To have awareness on pricing, promotion and personalselling.

Units	Syllabus	Outcomes	Hours
1	Introduction: Market – Types of Market – Marketing – The Evolution of Marketing – Scope of Marketing – Functions of Exchange– Functions of Physical Distribution- Selling vs Marketing. Modern P’s of marketing	The students can learn, 1. Marketing and itsfunctions. 2. The functions of physical distribution. 3. The differences between selling andmarketing.	6
2	Product: Meaning - Definitions- Levels or Dimensions of Product- Characteristics of Products- Levels of Product Life Cycle-marketingstrategy -Product Innovation- Quality assurance- Positioning the product in the market.	The students can understand, 1. The marketingenvironment. 2. The controllable and uncontrollableforces. 3. The trends in marketing environment.	6
3	Pricing: importance of pricing – pricing objectives – price as a measure of value – base price- Break Even Analysis- Return on Investment – Pricing policies – Cost plus pricing – Discounts and Allowances.	The students can understand, 1. The importance of pricing and methods ofpricing 2. The pricingpolicy. 3. The Break Even Analysis and ROI.	6
4	Promotion : promotion messages – Social aspects of promotion- promotion strategy- sales promotion- sales promotion objectives- strength of sales promotion- kindsof sales promotion	The students can understand, 1. The social aspects ofpromotion. 2. The strength of sales promotion objectives. 3. The kinds of sales promotion.	6
5	Personal selling : Efficacy of personal selling in marketing – personal selling and price decisions- personal selling and distribution – personal selling and product promotions- types of salesman – advantages – limitations- qualities of a goods salesman	The students can understand, 1. The efficacy of personalselling. 2. The various types of pricing decisions. 3. The personal selling and product promotions.	6

Text Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Marketing Management	S.A.Sherlekar	2006 (13)	Himalaya Publication, Chennai
2	Marketing Management	RajaGobal	2003 (1)	Vikas Publishing house, New Delhi
3	Modern Marketing Management	B.S.Bhattiah G.S.Bhatra	2005	Deep and Deep Publications, Pvt. Ltd, New Delhi.


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SEMESTER III

Programme: UG	Subject: COMMERCE(CS)
Course code: 19USBE31	Course Title: SOFT SKILLS AND CAREER ACTUALISATION
Category: SKILL BASED - I	Credits: 4

Objectives:

1.
- To equip the students effectively to acquire skills in reading, writing, comprehension andCommunication.
2.
- To make the students to use electronic media for businesscommunication.
3.
- To enable the students to draft application andresume.

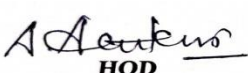
Units	Syllabus	Outcomes	Hours
1	Business Communication: Introduction - Nature and Importance of communication– general objectives of communication - Definition - Process of communication - Importance of communication to individuals - Types of communication(Verbal &Non Verbal) – Forms of communication – Barriers to communication - Communication network in anorganization.	The students can understand, 1. The importance ofcommunication 2. The importance oftypes of communication. 3. The barriers of communication.	12
2	Business Letters: Letter Writing - Lau out of business letters - Principles of Letter Writing -Kinds of business letters -Quotations - Orders -Tenders - Sales Letters - Claims and Adjustment Letters – Credit and Collection Letters -Letters ofcomplaint.	The students can understand, 1. The effectiveness of business writing and effective businesscommunications. 2. Effective interpersonalcommunication skills. 3. The types of business letter and sales letter.	12
3	Drafting Resume: Guidelines to be followed for drafting an application and resume - Letter of application - Drafting the Application - Elements of Structure of Application - Resume Preparation.	The students canlearn, 1. The job relatedcommunication. 2. The guidelines to be followed in drafting application andresume. 3. The elements of structure of application andresume.	12
4	Interview Skill: Types of Interviews - Preparation for Attending theInterview - Guidelines to be observed during an Interview - Kinds of questions asked in an interview - Interview ProcessOnline Interview – Tips for Successful Interview.	The students can gain knowledge on, 1. Preparation for attending theinterview. 2. The effective presentation deliverancein interview. 3. The guidelines to be observed during an interview.	12
5	E-Communication: Role and Effectiveness of Technology in Business Communication –Email, Text Messaging, Instant Messaging –Modern Techniques like Video Conferencing, Social Networking – Strategic Importance of E-Communication.	The students can learn, 1. The skills of Modern forms of communication. 2. The Role and Effectiveness of e-communication. 3. The skills of E-C0mmunicatin.	12

Text Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Business Communication	N.S.Raghunathan	2018 (1)	Margham Publications, Chennai
2	Essentials of Business Communication	Rajendrapal	2013 (1)	S.Chand& Co, New Delhi
3	Business Communication	K.Sundar	2012 (1)	Vijay Nicole Imprint, Chennai

Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	A Guide to Business Correspondence & Communication Skills	K.N.Kapoor	2000 (1)	S.Chand& Co, New Delhi
2	Business Communication	Kaul.Asha	2001 (1)	Prentice Hall of India, New Delhi



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SEMESTER IV

Programme: UG	Subject: COMMERCE (CS)
Course code: 19UCCC41	CourseTitle: PARTNERSHIPACCOUNTING
Category: MAJOR CORE –9	Credits: 4

Objectives:

1. To enable the students to understand the nature and system of accounting followed in Partnership firm.
2. To make the students to learn the procedures to be followed at the time of Admission, Retirement and Death of a partner in a partnership business.

Unit	Detailed Syllabus	Outcomes	Hours
1	Partnership Accounts: Fundamentals Partnership Deed - Necessary Adjustment Interest on Capital - Interest on Drawing Interest on Loans - Partners Salary and Commission – Profit & Loss Appropriation Capital Account - Fixed Capital Method Fluctuating - Past Adjustments and Guarantee.	The students can 1. understand fundamentals of partnership deed. 2. able to do various partnership adjustment accounts. 3. able to know Fixed capital method, fluctuating, past adjustment and guarantee.	18
2	Admission of a Partner: Adjustment in Profit Sharing Ratio - Calculation of Sacrificing Ratio Kinds of Goodwill – Methods of valuation of goodwill - Simple and Weighted Average Treatment of Goodwill in Admission Revaluation Account – Adjustment regarding Goodwill – Adjustment regarding Capital.	The students can 1. easily understand adjustment in profit sharing ratio. 2. able to do methods of valuation of goodwill. 3. Able to prepare adjustment regarding goodwill and adjustment regarding capital.	18
3	Retirement or Death of a Partner: Profit Sharing Ratio - Gaining ratio -Sacrificing Vs Gaining Ratio - Treatment of Goodwill in Retirement - Adjustment of Capital Memorandum Revaluation Account - Retirement andDeath of Partner – Retiring Partner’s loan – Joint life policy.	The students can 1. be able to understand profit sharing ratio and gaining ratio 2. know about treatment of Goodwill in retirement. 3. understand joint life policy after retirement and death of partner.	18
4	Dissolution of partnership: Meaning-Modes- Accounting treatment - Journal entries Treatment of Goodwill in dissolution Piecemeal Distribution- Proportionate capital method - Maximum loss method - Accounting Procedure – Insolvency of a partner, two partners and all partners – Garner vs. Murray rule.	The students can 1. understand treatment of goodwill in dissolution of partnership 2. able to do proportionate capital method and maximum loss method. 3. be able to know about insolvency of a partner, two partners and all partners.	18
5	Amalgamation of firms: Introduction – Meaning – Objectives - Benefits – Forms of amalgamation - Problems or issues in amalgamation-Accounting treatment in the books of amalgamating firms Revaluation of assets and liabilities - Transfer of Profits and loss - Disposal of assets and liabilities.	The students can 1. understand the procedure for amalgamation. 2. Learn the treatment of Revaluation of assets and liabilities. 3. be able to do gradual realisation of assets.	18

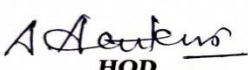
Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Financial Accountancy	T.S.Reddy & A.Murthy	2011 (6)	MarghamPublications,Chennai
2	Advanced Accountancy	S.P.Jain & K.L.Narang	2017 (19)	Kalyani Publishers, New Delhi

Reference Books

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Fundamentals of Advanced Accounting	R.S.N.Pillai, Bagavathi & S.Uma	2008 (2)	S.Chand & Company Ltd., New Delhi
2	Advanced Accountancy	Ravi Kishore	2014 (1)	Taxmann Allied Services (p)Ltd, New Delhi.
3	Advanced Accountancy	Chandra Bose	2010 (1)	PHI Learning (P) Ltd, New Delhi.

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SEMESTER III

Programme: UG	Subject: COMMERCE (CS)
Course code: 19UCCC42	Course Title: BUSINESS STATISTICS
Category: MAJOR CORE - 10	Credits: 4

Objectives:

1. To provide the students with basic knowledge of statistical techniques as are applicable to business.
2. To enable the students to apply statistical techniques for quantification of data in business.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Meaning – Definition – Importance – Application – Limitations of Statistics. Statistical survey – Planning and design of survey. Collection of Data – Sources-Primary and secondary data – Techniques – Census method and sampling method–Methods of sampling. Classification and tabulation of data– Diagrammatic and graphic presentation of data.	The students can 1. be able to know the importance, limitations of statistics 2. learn to collect the data 3. understand the uses of classification, tabulation, diagrammatic and graphic presentation of data	15
2	Measures of Central Tendency: Meaning – Definition – Functions - Mean – Merits - Demerits - Median - Merits - Demerits – Mode – Merits - Demerits – Geometric Mean – Merits - Demerits - Harmonic Mean – Merits - Demerits.	The students can 1. learn to find average of arithmetic mean. 2. learn to compute median and mode. 3. be able to compute harmonic and geometric mean.	15
3	Measures of Dispersion and Skewness: Meaning – Definition - Methods of Dispersion - Range - Quartile Deviation – Mean Deviation - Standard Deviation – Co-efficient of Variation. Skewness - Methods of Skewness - Karl Pearson’s Co-efficient of Skewness – Bowley’s Co-efficient of Skewness.	The students can 1. know to calculate mean and standard deviation. 2. be able to compute skewness. 3. apply Bowley’s co-efficient of skewness.	15
4	Correlation and Regression: Meaning – Types - Scatter Diagram – Karl Pearson’s Co-efficient of Correlation -Rank Correlation – Concurrent Deviation Method. Regression Analysis – Uses - Regression Line – Regression Equations – Least Square Method -Deviations taken from actual mean and assumed mean method.	The students can 1. understand the concept of correlation and regression. 2. be able to calculate correlation. 3. be able to solve regression analysis	15
5	Index Numbers and Analysis of Time Series: Meaning – Types - Problems – Methods of Constructing Index Numbers – Weighted and Unweighted Indices – Index Number Tests – Consumer Price Index Numbers. Analysis of Time Series – Meaning – Importance – Components of Time Series – Secular trend, Seasonal, Cyclical and Irregular Variations – Measurement of Trend - Graphic method -Semi Average Method – Moving Average Method – Method of Least Square.	The students can 1. know the idea of index number and time series 2. know to compute consumer price index number. 3. understand the concept of Secular trend, seasonal, cyclical and irregular variations.	15

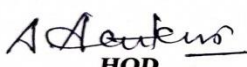
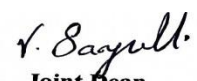
Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Statistics-Theory and Practice	R.S.N. Pillai & Bhagavathi	2009 (7)	S.Chand &Co, New Delhi
2	Business Statistics	Dr. S.P. Gupta, M.B.Gupta	2001 (1)	Sultan Chand & Sons, New Delhi

Reference Books

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Business Statistics	C.V.Shennoy, V.K.Srivatsav, S.C.Sharma	2001 (1)	New Age International (P) Ltd,New Delhi
2	Statistics for Business and Economics	J.S.Chandran	2002 (1)	Vikas Publishers, New Delhi
3	Business Statistics	C.G. Berry	2005 (2)	Tata Mcgrawhill, New Delhi

***For Problem paper: 40% marks for theory and 60% marks for problems**

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Programme: UG	Subject: COMMERCE (CS)
Course code: 19UCCC43	Course Title: CAPITAL MARKET
Category: MAJOR CORE -11	Credits: 4

Objectives:

1.
- To understand the meaning and importance of Financial and Capitalmarkets.
2.
- To create an interest among students towards stock marketinvestment.
3.
- To obtain knowledge on Securitiesanalysis.

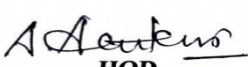
Units	Syllabus	Outcomes	Hours
1	Capital market in India: Financial market–structure, capital market–meaning, classification – primary and secondary – Indian securities market –government securities market – Online Trading	The students can understand 1. The financialmarket. 2. The capital market inIndia. 3. The process of Indian securitiesmarket.	15
2	Primary market: Methods of flotation of capital , public issue–IPO–FPO–Procedure of public issue – Book building process – Role of intermediaries – Privateplacement	The students can understand , 1. The basic concept and procedure of IPO andIPO. 2. The primary market and publicissue. 3. The methods of flotation ofcapital.	15
3	Secondary market: Functions of stock exchange–Dematerialisation of securities– Depositories – Major stock exchanges inIndia – BSE – NSE – Listing – Online trading – Clearance and settlement – Rolling settlement – Investment VsSpeculation	The students can familiar with, 1. The Securities onlinetrading. 2. The functions of stockexchange. 3. The detail factors of BSE andNSE.	15
4	Derivatives : Meaning–types of derivatives–Commodity Vs Financial Derrivatives – Forwards – Features – Options – Trading mechanism –Commodity exchanges	The students can be able to 1. Analyse the Derivatives and type of derivatives. 2. Differentiate commodity vs. financial derivatives. 3. Analyzer the tradingmechanism.	15
5	Regulatory Framework of stock exchanges: Securities contract (Regulation) Act(basics only) – Role and functions of SEBI –regulatory functions – development functions –Investor protection mechanism – purpose – operation.	The students can, 1. Explore the concept of regulatory framework of stockexchange. 2. Be familiar with the role and functions of SEBI. 3. Be familiar with securities contractAct.	15

Text Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1.	Investment Analysis and Portfolio Management	Prasanna Chandra	2008 (1)	Tata McGraw Hill Publishing Co, Ltd., Chennai.
2.	Security Analysis and Portfolio Management	Punithavathy Pandian	2008 (2)	Vikas Publishing House Pvt Ltd, New Delhi
3.	Investment Management	Preethi Singh	1999 (2)	Himalaya Publishing House, New Delhi

Reference Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1.	Investment Analysis and Portfolio Management	R.B.Rustagi	2008 (2)	Sulthan Chand & Sons, New Delhi
2.	Security Analysis and Port folio Management	V.A.Avadhani	2008 (2)	Himalaya Publishing House, New Delhi


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SEMESTER IV

Programme: UG	Subject: COMMERCE(CS)
Course code: 19UCCC44	Course Title: PRINCIPLES OF INSURANCE
Category: MAJOR CORE -12	Credits: 4

Objectives:

1.
- To familiarize the students with concepts and principles ofInsurance.
2.
- To impart knowledge on the concept, rules and regulations of Insurance Industry inIndia.
3.
- To enable the students to make use of benefits and proper usage of insuranceschemes.

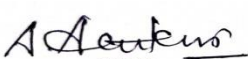
Units	Syllabus	Outcomes	Hours
1	Introduction - Insurance – Definition – Functions of Insurance – Concept of Insurance - Nature of Insurance – Insurance Contract - Benefits of Insurance to Individuals, Business Units and the Society - Risk management	The students can, 1. Explore the concept of Principles of Insurance. 2. Understand the insurancecontract. 3. Analyze the functions of insurance.	15
2	Principles of Insurance Basic Principles of Insurance – Utmost good faith – Insurable Interest – Material Facts – Indemnity – Proximate Cause. Economic Principles of Insurance – Sharing – Subrogation – Contribution. Financial Principles of Insurance – Premium Funds – Investments – Reserves – Surplus – Valuation of Surplus.	The students can, 1. Be aware of indemnity and proximate cause. 2. Be aware of premiumfunds. 3. Be familiar with the concept of major principles ofinsurance.	15
3	Classification and types Classification of Insurance – Life Insurance – Types of Life Insurance: Pure and Terms – General Insurance – Types of General Insurance: Fire, Marine, Motor, and Miscellaneous.	The students can obtain, 1. The knowledge about lifeinsurance. 2. The knowledge about different types of Insurance. 3. The knowledge on generalinsurance.	15
4	Agents and underwriting Law relating to Agents – Procedure for becoming an Agent – License, Cancellation of License. Underwriting Procedures – Assignment and Nomination.	The students can, 1. Focus on the procedure for becoming an agent. 2. Describe the procedures for license and underwriting. 3. To Gain knowledge on assignment and nomination.	15
5	Indian insurance industry Structure of Indian Insurance Industry – Insurance Regulatory and Development Authority (IRDA): Constitution, Duties, Powers and Functions – Public Sector Insurance Companies – Private Sector Insurance Companies – Reforms in the Indian Insurance Industry.	The students can, 1. Demonstrate the factors relating toIndian insurance industry and itsstructure. 2. Understand IRDA and its duties, powers andfunctions. 3. Be aware of reforms in the Indian insurance industry.	15

Text Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1.	Insurance Principles & Practice	S.Devairakkam	2001 (1)	DSR Publication, Tirunelveli
2.	Principle & Practice Of Insurance	Sundaram.S.S.M & Muthupandi.M	2002 (1)	Sri Ganapathy Publications, Madurai
3	Life and Health Insurance	J.R.Kenneth	2004 (13)	Pearson Education, New Delhi

Reference Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1.	Insurance	Bodla.B.S&Garg.M.C	2004 (1)	Deep & Deep Publications, New Delhi
2.	Insurance	Holyoake, Julia And Weipers, Caniam	2002 (4)	AITBS Publishers, New Delhi



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SEMESTER IV

Programme: UG	Subject: COMMERCE (CS)
Course code: 19UCCA41	Course Title: CORPORATE FINANCE
Category: ALLIED –IV	Credits: 3

Objectives:

1.
- To understand the corporatefinance.
2.
- To know the capital structure andcapitalization.
3.
- To know the working capital management, financial system and capital market.

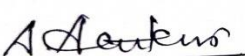
Units	Syllabus	Outcomes	Hours
1	Corporate Finance –Definition - Scope and importance - Finance function -Nature and organization of the finance function - Factors affecting finance organization- classification of finance function - Role of board of directors, chief financial officers - controller and treasurer in financefunction.	The students acquire, 1. The knowledge of corporate finance and its wideraspects. 2. The basic knowledge about role of board of directors in corporatefinance. 3. Complete knowledge on classification of financefunction.	9
2	Capital structure –Meaning - Capital structure and financial structure - Pattern of capital structure - Point of indifference - Financial Breakeven point - Optimum capital structure - Capital structure theories - Factors determining capital structure - Financial and operating leverage - Long term and Short termcapital.	The students can acquire, 1. The knowledge on concept of capital structure. 2. The ability to comprehend the capital structure, and the breakevenpoint. 3. The ideas on financial and operating leverage.	9
3	Capitalization – Pattern of financing - Principles governing financial plan - estimating capital requirement - Assessment of fixed capital requirement - Factors determining fixed capital - Management of fixed capital- Over capitalization– Under capitalization–Capital gearing.	The students can understand, 1. The term capitalization and the pattern of financing. 2. The factors relating to over capitalization and undercapitalization. 3. The concept of capitalgearing.	9
4	Working capital management – Concept of working capital - Need for working capital - Determination of working capital–importance– financing of working capital management - sources of working capital.	The students can understand, 1. The working capital management and its needs. 2. The concept of capital budgeting and taxes. 3. The concept of investmentproposals.	9
5	Financial systems – Financial asset – Financial market – Financial market returns – Financial intermediaries- Regulatory infrastructure – Recent trends in Indian financialsystem.	The students can acquire knowledge regarding, 1. Regulatoryinfrastructure. 2. Financial systems and recent trends in Indian financialsystem. 3. The reliable factors relating tofinancial systems.	9

Text Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1.	Corporate Finance	S.C.Kuchal	2005 (24)	Popular Prakashan Publishers, Mumbai
2.	Indian Financial System	My Khan P.N.Varhney&D.K.Mittal	2009 (5)	Himalaya Publishing House Pvt Ltd, Chennai
3.	Financial Services	Radha	2014 (5)	Kalyani Publishers, New Delhi

Reference Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1.	Financial Management	I.M.Pondey	2005 (8 th)	Vikas Publishing House, Chennai
2.	Capital Market Management	V.A.Avadhani	1997 (1)	Himalaya Publishing House Pvt Ltd, Chennai


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SEMESTER IV

Programme: UG	Subject: COMMERCE (CS)
Course code: 19UNME4A	Course Title: HUMAN RIGHTS
Category: NON – MAJOR ELECTIVE -II	Credits: 2

Objectives:

1.
- To understand the basic concepts of humanrights.
2.
- To have an understanding of the relationship between individual, group, and nationalrights.
3.
- To get awareness on bonded laboursystem.

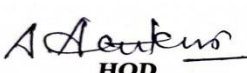
Units	Syllabus	Outcomes	Hours
1	Rights :Definition - history of rights - Characteristics of human rights – Status of rights- Identifying rights – Concept of residual rights - kinds of Human Rights – Civil and political –social, economic and cultural rights	The students can, 1. Be aware of humanrights. 2. Understand the rights and characteristics of humanrights. 3. Analyze the kinds of humanrights.	6
2	- Child Rights – Introduction – Child rights – Declaration of the rights of a child – child labour – Child abuse and exploitation – Prevention- child abuse in India.	The students can, 1. Understand the rights of achild. 2. Be aware of the issues of childrights. 3. Understand the factors related to child rights and child abuse inIndia.	6
3	Contemporary issues on Human rights- Women Rights – Women constitutional rights – Women rights and Indian penal code – Women rights and protection of women from domestic violence – present position of women in India.	The students can be familiar with, 1. The Prevention of Women constitutionalrights. 2. The Rights of Women and Indian penal code. 3. The protection of womenfrom domestic violence.	6
4	Rights of refuges, Dalit’s and Bonded labour- Concepts and definitions - Constitutional and legal provisions -Salient features of bonded labour system (abolition) Act 1976 - Role of the national humanrights commission	The students can be familiar with, 1. The Rights of Refuges, Dalits and BondedLabour. 2. The salient features of bonded labour system abolitionact. 3. The role of the national human rights commission.	6
5	Right to Information Act- Introduction – Main characteristics of the Act- Exempt from Disclosure – Procedure for seeking information – Appellate Author/sities – penal provisions – Reporting procedure. (Senior Citizen Right)(Challenges People Rights)	The students canunderstand, 1. The characteristics of Right to InformationAct. 2. The procedures ofPenalprovisions. 3. Procedure for seeking information under theact.	6

Text Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1.	Human Rights(With RTI Act)	Dr.T.S.Ravi	2017 (2)	Margham Publications, Chennai
2.	Human Rights	Dr.Giriraj Shah IPS & K.N.Gupta IPS	2004 (4)	McGrawhill Publications, New Delhi
3.	Teaching of Human Rights	JagannathMohany	2003 (6)	Macmillan Publishers, New Delhi

Reference Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1.	Concepts, Theories and Practice of Human Rights	Praveen Vadkar	2003 (4)	Neha Publishers, New Delhi
2.	Human Rights in India	Asish Kumar Das and Prasant Kumar Mohanty	2001 (7)	Sarup & Sons, Chennai


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SEMESTER IV

Programme: UG	Subject: COMMERCE (CS)
Course code: 19UNME4B	Course Title: ENTREPRENEURSHIP DEVELOPMENT
Category: NON – MAJOR ELECTIVE - II	Credits: 2

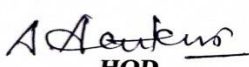
Objectives:

1. To understand the basic concepts of entrepreneurial development.
2. To identify the dimensions of entrepreneurship.
3. To get awareness on launching of new business.

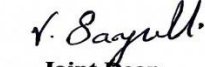
Units	Syllabus	Outcomes	Hours
1	Entrepreneurship - Introduction-Evolution- Characteristics– Types- Functions of Entrepreneurs – Qualities of Successful Entrepreneurs – Entrepreneur Vs Entrepreneurship INTRAPRENEUR	The students can be familiar with, 1. The factors of entrepreneurial development. 2. The types of Entrepreneurship 3. The qualities of successful entrepreneurs.	6
3	Launching of New Business - Product strategies – Pricing strategies – Distribution strategies – Promotional Strategies -Step by Step Approach for searching New Business.	The students can be familiar with, 1. The launching of new business. 2. The strategies of product, pricing and distribution. 3. The step by step approach for searching new business.	6
4	Management of Small Business- Small Enterprises – Definition, Classification – Characteristics, Ownership Structures – Project Formulation – Steps Involved In Setting Up A Business–	The students can be familiar with, 1. The management of small business. 2. The project formulation factors and steps involved in setting up of a business. 3. The concept of ownership structure.	6
2	Government Schemes for Entrepreneurs : Prime Ministers Employment Generation Scheme- Gram Udyog Vikas Yojna- Credit Guarantee on Loans to Micro and Small Enterprises and New Entrepreneurs- Entrepreneurship and Skill Development Programme -MSME	The students can understand , 1. The schemes of Government. 2. The entrepreneurial training and support organizational services. 3. The concept of Entrepreneurial society.	6
5	Project Appraisal- Introduction– Classification of projects -Meaning and Methods of Project Appraisal–Economic Appraisal – Financial – Payback period technique – ROI – Discounted cash flow – IRR – NPV – PI –Risk and uncertainty – Market –Technological Appraisal– Managerial Competence.	The students can be familiar with, 1. IRR-NPV-PI. 2. The concept of managerial competence. 3. The various factors relating to project appraisal and economic appraisal.	6

Text Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1.	Dynamics of Entrepreneurial Development and Management	Vasanth Desai	2004 (8)	Himalaya publishing House, New Delhi
2.	Entrepreneurship and Small Business Management	P.S.Subba Rao	2008 (4)	Discovery Publishing House, New Delhi
3.	Entrepreneurial Development	Jayshree Suresh	2018 (5)	Margham Publications, Chennai



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SEMESTER IV

Programme: UG	Subject: COMMERCE (CS)
Course code: 19USBE41	Course Title: DYNAMICS OF ENTREPRENEURSHIP DEVELOPMENT
Category: SKILL BASED –II	Credits: 4

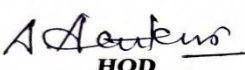
Objectives:

1.
- To develop and strengthen the entrepreneurial quality among the students
2.
- To know the sources of help and support available for starting a small-scale Industry.
3.
- To obtain knowledge about starting new business.

Units	Syllabus	Outcomes	Hours
1	Entrepreneurship Essentials- Evolution- Characteristics–Type. Functions of Entrepreneurs – Qualities of Successful Entrepreneurs – Entrepreneur Vs Entrepreneurship – Entrepreneur Vs Intrapreneur – Growth of Entrepreneurship in India.	The students can be familiar with, 1. The factors of entrepreneurial development. 2. The types of Entrepreneurship 3. The qualities of successful entrepreneurs.	12
2	Government Schemes for Entrepreneurs : Prime Ministers Employment Generation Scheme- Gram Udyog Vikas Yojna- Credit Guarantee on Loans to Micro and Small Enterprises and New Entrepreneurs- Entrepreneurship and Skill Development Programme –MSME	The students can understand , 4. The schemes of Government. 5. The entrepreneurial training and support organizational services. 6. The concept of Entrepreneurial society.	6
3	Launching of New Business - Product strategies – Pricing strategies – Distribution strategies – Promotional Strategies -Step by Step Approach for searching New Business.	The students can be familiar with, 1. The launching of new business. 2. The strategies of product, pricing and distribution. 3. The step by step approach for searching new business.	12
4	Management of Small Business- Small Enterprises – Definition, Classification – Characteristics, Ownership Structures – Project Formulation – Steps Involved In Setting Up A Business – Identifying, Selecting A Good Business Opportunity, Market Survey And Research, Techno Economic Feasibility Assessment	The students can be familiar with, 1. The management of small business. 2. The project formulation factors and steps involved in setting up of a business. 3. The concept of ownership structure.	12
5	Project Appraisal- Introduction–Classification of projects -Meaning and Methods of Project Appraisal–Economic Appraisal –Financial –Payback period technique – ROI – Discounted cash flow – IRR – NPV – PI –Risk and uncertainty –Market –Technological Appraisal–Managerial Competence.	The students can be familiar with, 1. IRR-NPV-PI. 2. The concept of managerial competence. 3. The various factors relating to project appraisal and economic appraisal.	12

Text Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1.	Dynamics of Entrepreneurial Development and Management	Vasanth Desai	2004 (8)	Himalaya publishing House, New Delhi
2.	Entrepreneurship and Small Business Management	P.S.Subba Rao	2008 (4)	Discovery Publishing House, New Delhi
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SEMESTER V**

Programme: UG	Subject: COMMERCE(CS)
Course code: 19UCCC51	Course Title: CORPORATE ACCOUNTING
Category: MAJOR CORE -13	Credits: 4

Objectives:

1. To make the students to study the issue, allotment and forfeiture of shares of companies.
2. To enable the students to prepare final accounts according to Companies Act, 2013.

Unit	Detailed Syllabus	Outcomes	Hours
1	Issue of shares: Meaning - Definition – Salient features of Joint Stock Company – Distinction between Firm and Company – Kinds of Companies – Issues of Shares- at Par, at Premium and at Discount – Pro rata allotment - Forfeiture and Re-issue of Shares - Preference Shares - Forfeiture of Shares – Redemption of Preference Share - Issue of Debentures (Excluding reduction of debentures).	The students can 1. be able to know the differences between firm and company 2. understand the types of company in detail 3. be able to understand the details of preference shares	18
2	Valuation of Goodwill and Shares: Definition– Nature– Sources of Goodwill– Need for valuing Goodwill – Factors affecting value of Goodwill – Methods-Average Profit Method-Super Profit Method - Capitalisation Method - Methods of Valuation of Shares – Net Assets/Intrinsicvalue Yield Method/Earning Capacity – Fair Value Method.	The students can 1. be able to know about the sources of Goodwill 2. understand about the methods of Goodwill 3. understand the need for valuing Goodwill to be known by the students	18
3	Final Accounts of Companies (as per Schedule II of Companies Act 2013): Introduction – P&L Account – Tax Adjustment - Dividend – Transfer to Reserve – Managerial Remuneration – Perquisites to be included in Managerial Remuneration - Administrative ceiling regarding Managerial Remuneration -Computation of NetProfit for Managerial Remuneration.	The students can 1. be able to know about Companies Act 2013 2. understand the preparation of final accounts of companies 3. be able to know about the perquisites to be included in managerial remuneration	18
4	Amalgamation, Absorption and External Reconstruction: Meaning under Accounting Standard (AS-14) – Types of Amalgamation – Accounting problems relating to Amalgamation and External Reconstruction – Purchase Consideration – Computation of Purchase Consideration – Lump Sum Method - Methods of Purchase Consideration. (Simple Problems only).	The students can 1. easily understand the procedures for amalgamation 2. be able to know about the procedures for absorption 3. be able to analyze the procedures for external reconstruction method	18
5	Profit Prior to Incorporation: Introduction – Treatment of Profit or Loss prior to Incorporation – Methods of ascertaining Profit or Loss prior to Incorporation – Basis of apportionment of expenses – Steps involved in ascertaining pre and post incorporation profit - Underwriting of Shares and Debentures.	The students can 1. be able to know about the treatment of profit or loss prior to incorporation 2. understand the methods of ascertaining profit or loss prior to incorporation to be known by the students 3. be able to understand the methods of underwriting of shares or debentures	18

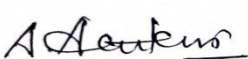
Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Corporate Accounting	T.S.Reddy & A.Murthy	2007 (6)	Margham Publishers, Chennai
2	Corporate Accounting	S.P.Jain & K.L.Narang	2002 (3)	Kalyani Publishers, New Delhi

Reference Books

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Corporate Accounting	M.M.Varma, R.K.Agarwal	2002 (1)	King Book Publishers, New Delhi.
2	Advanced Accountancy	Schgal,Ashok, Schagal, Deepa	2008 (1)	Taxmann Allied Services (P)Ltd, New Delhi.
3	Advanced Accountancy	Dr.M..Arunachalam	2012 (1)	Himalaya Publishing House, New Delhi

***For Problem paper: 40% marks for theory and 60% marks for problems**



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SEMESTER V

Programme: UG	Subject: COMMERCE (CS)
Course code: 19UCCC52	Course Title: COST ACCOUNTING
Category: MAJOR CORE – 14	Credits: 4

Objectives:

1.
- To acquire the basic knowledge of cost in business concerns.
2.
- To understand the techniques of cost control.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Meaning – Cost - Classification of Cost – Elements of Cost – Costing – Methods of Costing – Types of Costing - Cost Accounting – Objectives and Functions of Cost Accounting - Scope – Advantages and Limitations – Preparation of Cost Sheet (Simple problems).	The students can 1. be able to understand the functions of cost accounting 2. be able to know about methods of costing 3. learn to prepare the cost sheet.	18
2	Process Costing: Meaning – Definition – Differences between Job and Process Costing – Accounting Wastages – scrap – Defect– Joint products and By-products - Costing procedures – Losses and Gains in process – Accounting treatment of Normal and Abnormal Losses – Abnormal Gain (Simple problems).	The students can 1. understand the meaning of process costing 2. learn about Costing procedures 3. be able to understand the Accounting treatment of Normal and Abnormal Losses	18
3	Marginal Costing: Meaning – Definition – Characteristics - Marginal costing Vs Absorption costing - Uses and Limitations – Marginal Cost Equations – CVP Analysis – Contribution – Break Even Analysis – Assumptions of BEP- Break Even Chart - P/V analysis – Margin of Safety – Key Factors.	The students can 1. know about marginal costing in detail 2. be able to understand the equations of marginal costing 3. have a clear idea about CVP Analysis and Break Even Analysis	18
4	Budgetary Control: Budget –Meaning- Definition – Objectives – Budgeting – Budgetary Control - Advantages and Limitations – Steps for Implementation – Classification of Budgets - Flexible Budgets – Production and Sales Budgets – Cash Budget - Zero Base Budgeting - Master Budget.	The students can 1. learn the meaning of budgetary control. 2. be able to understand the classification of budgets in detail 3. be able to prepare of various budgets.	18
5	Standard Costing: Meaning –Definition– Preliminaries to the establishment of the Standard Cost – Standard Costing Vs Budgetary Control - Standard Cost Vs Estimated Cost – Variances – Material Variances –Labour Variances – Overhead Variances – Sales and Profit Variances (Simple problems).	The students can 2. have a clear idea about standard costing 3. know about the various steps involved in standard costing 4. have a clear idea about material, labour and overhead variances in detail.	18

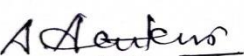
Text Books:

S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Cost Accounting	R.S.N.Pillai &V.Bagavathi	2009(19)	S.Chand & Company LTD, Ramnagar, NewDelhi.
2	Cost Accounting	S.P.Jain&Narang	2004 (1)	Kalyani Publishers, New Delhi

Reference Books

S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Cost Accounting	S.P.Iyenger	2005(10)	Sultan Chand &Sons, New Delhi.
2	Cost Accounting	Dr. Radha	2013 (1)	Prassana Publication, Chennai.
3	Cost Accounting	T.S.Reddy and Y.Hari Prasad Reddy	2011 (4)	Margham Publication, Chennai.

*For Problem paper: 40% marks for theory and 60% marks for problems


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**UCCS-BOS Sri Sarada College for Women, (Autonomous) Tirunelveli 627011 Reaccredited with “A” grade by NAAC
SEMESTER V**

Programme: UG	Subject: COMMERCE (CS)
Course code: 19UCCC53	Course Title: BUSINESS LAW
Category: MAJOR CORE -15	Credits: 4

Objectives:

1.
- To make the students to understand the definition of business law.
2.
- To enable the students to study the scope and boundaries of business law.

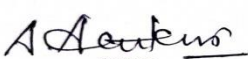
Unit	Detailed Syllabus	Outcomes	Hours
1	Indian Contract Act, 1872: Essentials of a valid Contract – Classification – Offer – Acceptance – Consideration – Capacity of the parties-Free consent – Legality of Object and Consideration– Void agreement – Contingent contracts.	The students can 1. know about the essentials of valid contract in detail 2. be able to classification of contracts. 3. know about offer, acceptance and consideration in detail	15
2	Performance of contract: Time and Place for Performance – Reciprocal Promises – Rules for Reciprocal Promises - Discharge of Contract – Meaning – Modes of discharge of contracts – Discharge by impossibility - Breach of Contract – Remedies – Quasi contracts.	The students can 1. be able to know about time and place for performance 2. be able to understand the reciprocal promises in detail 3. have a clear idea about the modes of discharge of contracts in detail	15
3	Special Contracts: Meaning - Definition – Indemnity – Guarantee - Kinds of guarantee - Differences between Contract of Indemnity and Contract of Guarantee – Rights of Surety against Creditor, Principal Debtors and Co-surety - Discharge of Surety from liability.	The students can 1. have a clear idea about the differences between contract of indemnity and contract of guarantee 2. be able to know about the various kinds of guarantee 3. be able to know about discharge of surety from liability.	15
4	Bailment: Meaning - Kinds of Bailment – Duties of Bailor - Duties of Bailee – Rights of Bailor and Bailee – Lien - Kinds of lien – Finder of lost goods - Pledge – Essentials of Pledge - Duties of Pawnor and Pawnee - Bailment Vs pledge – Contract of Agency – Duties and Rights of an agent – Duties of Principal – Sub-agent and Substituted Agent - Termination of Agency.	The students can 1. be able to know about bailment in detail in the unit 2. understand various kinds of bailment 3. learn the differences between bailment and pledge.	15
5	Sale of Goods Act: Sale - Agreement to sell - Differences between Sale and Agreement to Sell – Conditions and Warranties – Differences between Conditions and Warranty - Condition treated as a Warranty - Sale and Hire Purchase Agreement – Meaning - Classification – Documents of title to goods – Rights and duties of buyers and sellers – Rights of unpaid seller.	The students can 1. have a very clear idea about sale of goods Act. 2. know about the differences between conditions and warranty in detail. 3. know about the rights and duties of buyers and sellers.	15

Text Books:

S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Business Law	N.D . Kapoor	2014 (5)	Sultan Chand & Sons, New Delhi.
2	Business Law	Nirmal Singh	2004 (1)	Deep& Deep Publication, New Delhi.

Reference Books

S. No	Title of the Book	Author	Year (Edn)	Publisher/s
1	Business Law	S.M. Sundaram	2011 (2)	Karaikudi Meenakshi Publication.
2	Business Law	M.C.Kuchal	1996 (1)	Vikas Publication, New Delhi.
3	Business Law	Rao, Pettina Mohana	2013 (1)	PHI Learning, New Delhi.



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SEMESTER V

Programme: UG	Subject: COMMERCE(CS)
Course code: 19UCCC54	Course Title: INCOME TAX LAW & PRACTICE I
Category: MAJOR CORE – 16	Credits: 4

Objectives:

- To make the students to apply the basic concepts of income tax.
- To impart the students to study the provisions regarding computation of first three heads of income i.e., salary, house property and business income.

Unit	Detailed Syllabus	Outcomes	Hours
1	Basic Concept: Capital and Revenue (Expenses and Receipts) Taxable entities- Person, Assessee, previous and assessment year, total income, gross total income – Concept of income –Agricultural Income – Income exempted from tax.	The students can 1. be able to understand the basic concepts of capital and revenue expenditures and incomes 2. be able to know about the taxable entities in detail 3. know the methods of computing agricultural incomes are well known by the students	15
2	Residential Status: Classification of Residential status of taxable entities- Computation of Residential status of an individual- Basic and addition condition – incidence of taxation– Meaning of income received, accrued, deemed to be received – Deemed to be accrued -problems.	The students can 1. be able to have a clear idea about residential status in detail 2. be able to know about the taxable entities for residential status 3. understand the computation of residential status of an individual.	15
3	Income from Salary: Features of salary-Due date of salary-Receipts included under salary- Different forms of salary- Basic salary – Commission - Bonus- Allowances-Provident fund-Advance and arrears of salary – Perquisites – Problems in computation of salary income.	The students can 1. be able to understand the features of salary in detail 2. understand various receipts included under salary are well known by students. 3. learn different forms of salary	15
4	Income from House property: Meaning - Annual value – Standard deduction – Unrealized rent – problems in computation of house property income - Let out house - Self occupied house-Gross Annual value.	The students can 1. be able to understand about the income from house property in detail 2. understand the computation of house property incomes. 3. learn the difference between let outhouse and self occupied house	15
5	Income under the Head Business or profession: Definition of Business - Definition of Profession - Meaning of Business and Profession – Income chargeable to Tax under the Head - Allowable expenses – Expressly disallowed expenses – Computation of business and professional income.	The students can 1. have a clear idea about the income from business and profession in detail 2. understand the computation of business income. 3. know the computation of professional income.	15

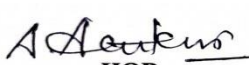
Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Income Tax Theory, Law and Practice	T.S.Reddy and Y.Hari Prasad Reddy	2019 (1)	Margham Publications, Chennai
2	Income tax Law and Accounts	Dr. H.C. Mehrotra and Dr. S.P. Goyal	2018 (36)	Sahitya Bhawan Publications,Agra.

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Income Tax Law and Practice	Pagare, Dinakar	2018 (17)	Sulthan Chand & Co., New Delhi.
2	Income Tax Law and Practice	T.Srinivasan,Mayilvaganan	2014 (1)	Science Technology Publication, Chennai.
3	Income Law and Practice	V.P.Gaur, D.B.Narang, Pooja Ghai and Rajeev Puri	2016 (29)	Kalyani Publishers, New Delhi

*For Problem paper: 40% marks for theory and 60% marks for problems


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Programme: UG	Subject: COMMERCE
Course code: 19UCCPE51	Course Title: COMMERCE FOR COMPETITIVE EXAMINATIONS & PROJECT
Category: Core 17	Credits: 6

COMMERCE FOR COMPETITIVE EXAMINATIONS

Objectives:

1. To enable the students acquire overall knowledge on Professional Competencies.
2. To enable the students apply the acquired knowledge Professional Competencies.
3. To enable the students to compete in the professional competitive examination.

Unit-I- Financial Accounting & Cost Accounting

Accounting Principles – Concepts and Conventions – Accounts and classification

– Double entry system of Accounting – Journal – Ledger – Subsidiary Books – Trial balance – Final Accounts - Definition of costing – uses of costing – objects and advantages – difference between cost and financial accounts – installation of costing systems – analysis and classification of costs – preparation of cost sheet – reconciliation of cost and financial books.

Unit-II- Taxation

Taxation - Types of Taxes - Canons of Taxation – Important Definitions: Assessment, Assessment Year, Previous Year (including Exceptions), Assessee, Person, Income, Casual Income, Gross Total Income, Agricultural Income Calculation of Tax Liability of an individual- - GST.

Unit-III -Business Statistics and Research Methods:

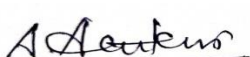
Index numbers- Regression analysis -Correlation-Measures of Dispersion- Measures of Central Tendency -Meaning and purpose -types of research -Pure and applied, survey, case study experimental, exploratory -Research Design -Meaning and purpose -types of research -Pure and applied, survey, case study experimental, exploratory -Research Design -Primary and secondary data -Report writing -Hypothesis testing -Processing and analysis of data

Unit-IV-Principles of Management and Business Organisation:

Introduction to management- Meaning and definition of management-Functions of management- Managerial skills-Levels of management-Co-ordination and controlling- Organising: Directing Planning and Decision making

Unit-V- Economics and Auditing:

Definition and meaning of business economics – basic concepts – importance and limitations of business economics –goods – types of goods – wants – law of diminishing utility – consumer surplus -definition and meaning of business economics – basic concepts – importance and limitations of business economics –goods – types of goods – wants – law of diminishing utility – consumer surplus. Demand analysis - Production analysis -Pricing of the product -Profit analysis.


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SEMESTER V**

Programme: UG	Subject: COMMERCE
Course code: 19UCCPE51	Course Title: PROJECT
Category: Core 17	Credits:6

Project Guidelines

(For Certificate, Diploma, Advanced Diploma, UG, PG, and MPhil., programmes)

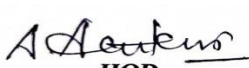
1. Duration of the project work shall be for a period of one semester
2. Project work shall be carried out under the supervision of a faculty member of the department concerned or from allied department, if the work is of interdisciplinary in nature or with internal or external expert beyond the department as co-supervisor.
3. The supervisor allocation shall be made by lot by the end of 4 semester in UG, by the end of 2nd semester in PG (April 1st week) and for MPhil., 15 days after joining the programme. The allocation details may be sent to Autonomous cell by 10th April for UG & PG and for MPhil., 30 days after joining the programme.
 - a. After allocation, the respective supervisors have to conduct orientation/counsel meeting with the assigned candidates about the project with P3 agenda (Participation, Presentation, and Publication) towards career prosperity. Subject Knowledge towards Pure and Applied part may be highlighted for doing the project.
 - b. The HOD shall review the coverage of different fields of the subject amongst the candidates and to see that the students should not focus on particular fields alone.
4. The candidates have to study/refer journals/previous works/focus on the proposed topic in the summer vacation and 5-10 titles of proposed project on respective subject (discipline) or on allied subject (interdisciplinary) with economic/scientific/social/local/state/national/global issues may be submitted to the guide by May end.
5. The supervisor shall guide the candidates on their choice after having reviewed proposed topics, the mindset and work culture, provided the work is of innovative in nature, affordable and with future prospective. If not satisfied with the proposed topic/due to lack of infrastructure/beyond scope and practicality, supervisor herself shall suggest the field/topic for work. Hard copy of proposed title with objectives in the prescribed format to be submitted to CoE's Office through Dean, Autonomous in the last week of June
6. Parent's undertaking/willingness may be obtained in writing by inviting the parents for department level meeting after explaining its importance, guidelines, safety precautions related to outdoor project commitment etc.
7. Project period – June to September. Last date for the submission of dissertation is 15th October
8. Project Progress Review has to be conducted in 5th July, 5th August and 5th September. Report Card for individual candidates shall be maintained at the department for audit at any time. (Proforma)
9. If a candidate fails to submit the dissertation on or before the specified date, she may submit the same on or before 15th November by paying prescribed late fee.
10. The evaluation of dissertation will be as per the University/Autonomous norms (MSU - SCAA- Page 11)
11. PG and M.Phil., students should carry out the project individually. UG students may undertake group projects with a maximum of three students in a group. The group may be of interdisciplinary nature combining students from two to three departments with the concern of the respective guides. An undertaking, in this regard, has to be submitted by the group of students with the endorsement by the guides.
12. LATEX procedure shall be followed for Mathematics projects.
13. **GUIDELINES ON THESIS (WITH STATIONERY ECONOMY MEASURES):**
 - a. Number of Pages (inclusive of prefix and suffix):
 - i) V semester Project Maximum 40 pages;
 - ii) VI semester Project Maximum 60 pages,
 - iii) PG Projects Maximum 80 pages; Iv) MPhil., maximum 100 pages.
 - b. Size of the paper A4; Font Times New Roman; Title 14 Capitals/Bold; Subtitle 12 Capitals/Bold; Running matter 11.
 - c. Left and Right margin 1 and half inch; Top and bottom margin 1 inch
 - d. Line space 1.5
 - e. Table and Figures shall be in separate sheets (without page number). More than 1 table or figure or plate is permitted in a page. Table number followed by the title should be on the top

of the respective table. Similarly Figure Number followed by title beat the bottom of the respective figures. Regarding Plates ie photographs only original photographs (printed in photo sheet) of the work carried out and scientifically relevant to be included. The size the photographs should be reduced and neatly arranged in a page with appropriate title or sub title. Plate Number followed by the title beat the bottom of the photographsconcerned.

- f. Number ofcopies:
- i. Copy 1 – Student copy – Neatly typed on one side with good binding to be submitted (to be returned immediately afterexamination)
- ii. Copy 2 – Department copy - Neatly typed on both sides of the paper with stapler pin binding –Copies of all students have to be bound in volumes of 1 or 2 and kept in the department forreference.
- iii. Copy 3 - Autonomous Office copy – Projects of all students as one CD/DVD & Hard copy of the abstract/extended abstract as OHP boundbooklet.
- iv. For PG & MPhil., (Candidate copy - Hard bound (one side print), Autonomy (CD), Guide copy (CD), Department (CD containing all projects of the class), Central library (CD containing all projects of the class) & Hard copy of the abstract/extended abstract as OHP boundbooklet.
- v. Uniform structure/composition of thethesis:

Uniformity in Prefix contents for all disciplines			
1	Wrapper page		
2	Wrapper page copy		
3	Contents		
4	Acknowledgement by the candidate		
5	Declaration by the Candidate with candidate’s Photo attested by HoD		
6	Certificate by the supervisor, countersigned by HoD		
7	Evaluation Examiners Page		
Running matter structure Arts, Languages, Humanities		Running matter structure Science	
1	Abstract/Extended Abstract	1	Abstract/Extended Abstract
2	Introduction	2	Introduction
3	Review of Literature	3	Review of Literature
4	Profile of The Study	4	Materials
5	Methodology & Data collection	5	Methodology
6	Analysis and Interpretation	6	Results
7	Findings, Suggestions and Conclusion	7	Discussion
8	Bibliography(Uniform format)	8	Bibliography (Uniform format)
Uniformity in Suffix – contents			
Publications – Xerox of Abstracts/extended abstracts/Full papers			

- g. Bibliography: Arts &Science.
- i. Researcharticle:
- Latha, P., Dhanabackialakshmi, R., Kumar, P.S. and Karuthapandian, S. 2016.Synergistic effects of trouble free and 100% recoverable CeO2/Nylon nanocomposite thin film for the photocatalytic degradation of organic contaminants. Separation and Purification Technology,168(2): 124–133
- ii. Conference / Seminar / Symposium papers
- Peng, J., Zhang, X., Lei, Z., Zhang, B., Zhang, W. and Li,Q. 2009. Comparison of several cloud computing platforms. In: Proceedings of Second International Symposium on Information Science and Engineering, 23 – 27
- iii. Books
- Versteeg, H.K. and Malalasekera, W. 2007.An Introduction to Computational Fluid Dynamics. II Edn. Pearson Education Ltd., New York, pp. 517
- iv. BookChapters
- Wade, S.E. 1981. Statistical designs for survey research. In: Stempel, G.H. and Westley, B.H. (Eds.). Research methods in mass communication.Printice Hall India Learning India Ltd., New Delhi, pp. 167
- v. Webreference
- National Institute of Mental Health.2018, July.Anxiety disorders. U.S. Department of Health and Human Services, National Institutes of Health. <https://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>
- (Author to be included first, date to be included before month, if available)


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Programme: UG	Subject: COMMERCE (CS)
Course Code: 19UPDC51	Course Title: PERSONALITY DEVELOPMENT
Category: Skill Based III Common	Credits: 2

UNIT -I - PERSONALITY

Definition – Determinants – Personality Traits –Theories of Personality – Importance of Personality Development. SELF AWARENESS – Meaning – Benefits of Self – Awareness – Developing Self – Awareness. SWOT – Meaning – Importance- Application – Components. GOAL SETTING Meaning- Importance – Effective goal setting – Principles of goal setting – Goal setting at the Right level.

UNIT – II - SELF MONITORING

Meaning – High self – monitor versus low self-monitor – Advantages and Disadvantages self-monitor- Self –monitoring and job performance. PERCEPTION- Definition- Factor influencing perception- Perception process –Errors in perception – Avoiding perceptual errors. ATTITUDE – Meaning- Formation of attitude – Types of attitude - Measurement of Attitudes – Barriers to attitude change – Methods to attitude change. ASSERTIVENESS - Meaning – Assertiveness in Communication – Assertiveness Techniques – Benefits of being Assertive – Improving Assertiveness.

UNIT – III - TEAM BUILDING

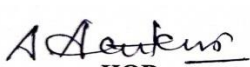
Meaning – Types of teams – Importance of Team building- Creating Effective Team.LEADERSHIP – Definition – Leadership style- Theories of leadership – Qualities of an Effect leader.NEGOTIATION SKILLS – Meaning – Principles of Negotiation – Types of Negotiation – The Negotiation Process – Common mistakes in Negotiation process.CONFLICT MANAGEMENT – Definition- Types of Conflict- Levels of Conflict – Conflict Resolution – Conflict management.

UNIT –IV - TRANSACTIONAL ANALYSIS

Meaning – EGO States – Types of Transactions – Johari Window- Life Positions. EMOTIONAL INTELLIGENCE- Meaning – Components of Emotional Intelligence- Significance of managing Emotional intelligence – How to develop EmotionalQuotient.

UNIT – V - Swami Vivekananda’s Personality Development.

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Personality Development,	Dr.S. NarayanaRajan, Dr. B. Rajasekaran, G. Venkadasalapathi, V. VijureshNayaham and Herald M.Dhas	2008	Publication Division, Manonmaniam Sundaranar University, Tirunelveli
2	Organisational Behaviour	Stephan P.Robbins	2008	Tenth Edition, Prentice Hall of India Private Limited, New Delhi
3	Oragnisational Behaviour	Jit S. Chandan	2009	Third Edition, VikasPublishing House PrivateLimited,Chennai
4	From Campus to Corporate	Dr.K.K. Ramachandran and Dr.K.K. Karthick	2010	Macmillan Publishers India Limited, New Delhi


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SEMESTER VI

Programme: UG	Subject: COMMERCE (CS)
Course code:19UCCC61	Course Title: COMPANY ACCOUNTS
Category: Core - 18	Credits: 4

Objectives:

1.
- To know the preparation of liquidator’s final statement of accounts.
2.
- To prepare the final accounts of banking company and Holding Company.
3.
- To train the students to prepare final accounts under double account system and Human Resource Accounting.

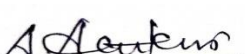
Units	Detailed Syllabus (all units of same size and duration)	Outcomes	Hours
1	Liquidation - Introduction- Meaning – Liquidation and insolvency – Modes of winding up – Order of payment – Powers and duties of liquidator – Statement of affairs – Distribution of surplus - Liquidator’s final statement of accounts.	The students can understand, 1. The order of payment at the time of liquidation. 2. The various powers and duties of liquidator. 3. The liquidator’s final statement of accounts.	15
2	Accounts of Banking Companies - Meaning – Objectives –Advantages- legal provisions- Disposal of non-banking assets- restrictions on commission and dividend- CRR and SLR- Money at call and at short notice- Acceptances- Advances - Endorsements- Bill for Collection- Rebate on bill discounted problems	The students can understand , 1. The Distribution of surplus of liquidator’s company. 2. The disposal of non-banking assets. 3. The money at call and at short notice.	15
3	Holding Company Accounts - Meaning – Objectives –Advantages - minority interest- Cost of control-capital and revenue profit- revaluation of assets and liabilities- treatment of dividend - sale of shares- share premium- preliminary expenses- consolidated Balance sheet - problems.	The students can, 1.Prepare consolidated Balance sheet 2.understand the treatment of divided. 3.understand the Cost of control method of holding company.	15
4	Double Accounts – features- advantages Accounts of State Electricity Boards Depreciation -Contingency reserve development reserve- tariff and dividend control reserve - capital base - clear profit- disposal of surplus - Replacement of assets problems.	The students can , 1. Know the concept of tariff and dividend control reserve. 2. Know the disposal of surplus and Replacement of assets under Double Accountssystem 3. Understand the accounting treatment of State Electricity Boards	
5	Human Resource accounting – Introduction – Definition – Valuation of human resources – Historical cost approach – Replacement cost approach – Opportunity cost approach – Merits and demerits -Objectives -Methods of Human Resource Value Accounting.	The students can understand , 1. The concept of Human Resource accounting. 2. The Merits and demerits of Human Resource accounting. 3. Understand the various methods of Cost Approach.	15

Text Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Advanced Accounting	Jain S.P Narang K.L	Reprint 2002	Kalyani Publishers, Chennai
2.	Corporate Accounting	T.S.Reddy Dr.A.Murthy	2015 (6)	Margham Publications, Chennai
3	Advanced Accountancy	Gupta R.L Radhaswamy.M	2014 (17)	Sultan Chand and Sons, New Delhi

Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Advanced Accountancy Volume – II	M.Wilson	2009	Scitech Publications, Chennai
2	Advanced Accountancy Volume – II	S.N.Maheswari	2012	Vikas Publishing House, Chennai


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SEMESTER VI

Programme: UG	Subject: COMMERCE (CS)
Course code: 19UCCC62	Course Title: MANAGEMENT ACCOUNTING
Category: Core - 19	Credits: 4

Objectives:

- To familiarise the students with the basic management accounting concepts and their applications in managerial decision-making
- To acquaint the students with accounting concepts, tools and techniques for Managerial decisions.

Unit	Detailed Syllabus	Outcomes	Hours
1	Management Accounting: Introduction-Meaning – Definition – Nature and Scope – Utility - Principles – Functions - Limitations – Tools of Management Accounting – Management Accounting Vs Financial Accounting – Management Accounting Vs Cost Accounting.	The students can 1. understand fundamentals of Management accounting Principles. 2. know about Management accounting and Financial accounting. 3. understand Cost accounting and Management accounting.	15
2	Ratio Analysis: Introduction - Meaning – Definition – Objectives – Uses and limitations of Ratio analysis - Classification of Ratios – Financial ratios – Profitability Ratios – Turnover Ratios.	The students can 1. understand the fundamentals of Ratio Analysis. 2. be able to do the Classification of Ratios. 3. understand the Uses and Limitations of Ratio Analysis	15
3	Fund Flow Analysis: Introduction -Meaning – Reason for preparing Fund Flow Statement – Uses of Fund Flow Statement – Preparation of Fund Flow Statement- Adjustment regarding treatment of provision for Taxation, Proposed Dividend and Depreciation – Sources and Application of Funds.	The students can 1. be able to understand the Fund Flow Analysis. 2. be able to compute Fund Flow Statement and Adjustments. 3. learn the preparation of Utility and Limitations of Cash Flow Analysis.	15
4	Cash Flow Analysis (AS 3): Introduction -Meaning – Definition – Uses of cash flow statement - Difference between Cash Flow and Fund Flow Statement– Preparation of Cash Flow Statement from operations – Procedure for preparation of cash flow - Utility and Limitations of Cash Flow Analysis. (Simple problems only)	The students can 1. be able to understand the Cash Flow Analysis. 2. be able to do the Cash Flow Statement and Adjustments. 3. learn the preparation of Sources and Application of Funds.	15
5	Capital Budgeting: Meaning – Definition – Uses - Concepts – Importance of Capital Budgeting – Advantages - Disadvantages– Capital Budgeting Methods – Payback period method– Net Present Value method-Internal Rate of Return Method (Simple problems only).	The students can 1. easily understand the Concepts of Capital Budgeting. 2. understand Capital Budgeting Process, Merits and demerits. 3. be able to do Traditional methods, Payback period method, Net Present Value method, Internal Rate of Returns	15

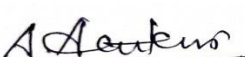
Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Management Accounting	R.S.N.Pillai & Bagavathi	2014 (1)	Sultan Chand & Sons, New Delhi
2	Principles of Management Accounting	Dr.S.N.Maheswari	2001 (12)	Sultan Chand & Sons, NewDelhi

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Management Accounting	E,Gordon,N.Jeyaram, N.Sundaram & R.Jeyachandran	2010 (1)	Himalaya Publishing House, Mumbai
2	Financial and Management Accounting	Dr.S.N.Maheswari	2012 (5)	Sultan Chand & Sons, New Delhi
3	Management Accounting	Alkinson, Antony. A.	2001 (3)	Pearson Education, New Delhi

*For Problem paper: 40% marks for theory and 60% marks for problems


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SEMESTER VI

Programme: UG	Subject: COMMERCE(CS)
Course code: 19UCCC63	Course Title: INDUSTRIAL LAW
Category: Core – 20	Credits: 4

Objectives:

1.
- To acquaint knowledge on industrial relations framework in our country
2.
- To study various rights and benefits available to the workmen under the legislations.
3.
- To make the students to know about ESI Act.

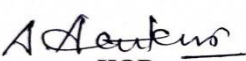
Units	Syllabus	Outcomes	Hours
1	The Factories Act, 1948 - definitions - approval, licensing and registration of factories - duties of occupier - inspecting staff - certifying surgeons - provisions for health – safety – welfare - working hours and holidays- employment of young persons and women –annual leave with wages- penalties and procedure.	The students can , 1. Be aware of The Factories Act. 2. Gain an idea on approval, licensing and registration of factories. 3. Obtain the knowledge on provisions for health and safety of employees.	15
2	Workmen Compensation Act 1923 - Scope and coverage - definitions–rules -personal injury by accident - occupational diseases arising out of and in the course of employment - theory of national extension - amount of compensation- distribution of the compensation- notice and claim	The students can , 1. Be aware of Workmen’s compensation Act. 2. Acquire knowledge in occupational diseases arising out of and in the course of employment. 3. Get an idea on the amount of compensation, distribution of the compensation.	15
3	Industrial Disputes Act 1947 - object - definitions- conciliation - machinery- adjudication machinery- powers and duties of Author/sities - procedures - voluntary reference to arbitration – award - strike – and lock outs – lay off – retrenchment – transfer and closing down of their undertaking – penalties	The students can , 1. Understand the laws related to working environment in industries. 2. Gain knowledge of conciliation, powers and duties of Author/sities. 3. Know the various methodology relating to strike, and lockouts	15
4	The Trade Unions Act, 1926 registration of trade unions–rights and liabilities of registered trade unions- regulations- penalties and procedure Consumer Act 1986- Consumer Protection Council- Jurisdiction of District Forum - Jurisdiction of State Commission	The students can , 1. Be aware of the laws relating to Trade Unions Act. 2. Gain an idea on registered trade unions rights and liabilities, procedures. 3. Obtain the knowledge on Consumerism.	15
5	The Employees’ State Insurance Act 1948 - Establishment of Employees’ State Insurance Corporation. — Constitution of Corporation. Term of office of the members of the Corporation. –The payment of Gratuity Act 1972- Determination of the amount of gratuity- Powers of Inspectors - Recovery of gratuity- Protection of gratuity(With Case Studies)	The students can , 1. Develop an idea on Employees’ State Insurance Act. 2. Understand the features of welfare and wage legislations. 3. Develop the judicial setup of Labour Laws.	15

Text Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	General and Commercial Law	N.D.Kapoor Rajiniabbi	2001 (2)	Sulthand Chand & Sons, New Delhi
2	Law, Ethick & communication	Dr.G.K.Kapoor & Dr.C.B.Gupta	2001 (3)	Sulthan Chand & Sons, New Delhi
3	Elements of Mercantile Law	N.D.Kapoor	2014 (36)	Sulthan Chand, New Delhi

Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Corporate and Allied Laws	Dr.G.K.Kapoor	2003 (2)	Sulthan Chand & Sons, New Delhi
2	Law, Ethick & Communication	Dr.G.K.Kapoor & r.C.B.Gupta	2004 (3)	Sulthan Chand & Sons, New Delhi
3	Company Law	Dr.G.K.Kapoor	2003 (6)	Sulthan Chand & Sons, New Delhi


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Reaccredited with “A” grade by NAAC SEMESTER VI

Programme: UG	Subject: COMMERCE (CS)
Course code:19UCCC64	Course Title: AUDITING
Category: Core - 21	Credits: 4

Objectives:

1.
2.
3.
- To know the importance of audit in commercial and non-commercial organizations.
- To understand the procedures to be followed while auditing in the business organizations.
- To understand the concept of verification and valuation of assets and liabilities.

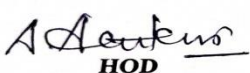
Units	Syllabus	Outcomes	Hours
1	Introduction - meaning –objectives – difference between Accountancy and Auditing – advantages – limitations – Audit programme – Audit working papers – preliminaries before Audit – test checking and routine checking.	The students can understand, 1. The concept of auditing. 2. The process of audit programme and audit working papers. 3. The preliminaries to be carried out before audit.	12
2	Internal check and internal control – meaning – objectives – difference between internal control and internal Audit – Advantages and Disadvantages of internal check – internal check regarding cash, purchases, purchase returns, sales and sales returns.	The students can understand, 1. The meaning of internal check and internal control. 2. The advantages and disadvantages of internal check. 3. The internal check of purchase and sale transactions.	12
3	Vouching – meaning – objects – importance of vouchers – precautions to be taken by the Auditors while examining vouchers – vouching of cash transactions – Vouching of trading transactions.	The students can understand, 1. The concept of vouching. 2. The precautions to be taken by the auditor while examining vouchers. 3. The vouching of cash and trading transactions.	12
4	Verification and valuation of assets and liabilities – classification of assets – verification of different types of assets – verification of liabilities – Valuation of investment, Stock -in - Trade and Book debts.	The students can understand, 1. The Classification of assets and liabilities. 2. The verification of assets and liabilities. 3. The valuation of investment.	12
5	Company Auditor - Appointment – qualification and disqualification – removal of an Auditor – status –rights – duties and liabilities – Auditor’s Report – content – kinds of Auditors Report – general considerations for drafting the report.	The students can , 1. Be aware of the various rights, duties and liabilities of an auditor. 2. Identify the qualification and disqualification of auditors 3. Identify the considerations for drafting the report.	12

Text Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Practical Auditing (for UG courses)	B.N.Tandon S.Sudharsanam S.Sundrarabahu	2014 (1)	Sulthand Chand Company, New Delhi
2	A Hand book of Practical Auditing	Dr.B.M.Tandon Dr.S.Sutharsanam Dr.S.Sundarabahu	2015 (2)	Sulthand Chand Company, New Delhi

Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Practical Auditing	S.Vengadamani	2017 (2)	Margham Publications, Chennai
2	Practical Auditing (As per Companies Act,2013)	Dr.L.Natarajan	2018 (2)	Margham Publications, Chennai


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SEMESTER VI

Programme: UG	Subject: COMMERCE(CS)
Course code: 19UCCC65	Course Title: INCOME TAX LAW & PRACTICE II
Category: Core - 22	Credits: 4

Objectives:

1.
- To impart the students to know the procedure for assessment and types of assessment.
2.
- To enable the students to understand the computation of tax liability of individuals

Unit	Detailed Syllabus	Outcomes	Hours
1	Income from Capital Gain: Capital Assets – Meaning - Kinds - Transfer of capital assets - Procedure for computing Capital Gain - Cost of acquisition - Cost of improvement -Determining STCG and LTCG - Determining indexed cost for acquisition and improvement Types – Exemptions – Computation – Problems in computation of Capital Gain.	The students can 1. able to know on capital assets in detail 2. able to understand the procedure for preparation of STCG 3. understand the procedure for preparation of LTCG	15
2	Income under the head other sources: Introduction - Other Income chargeable under this Head - Dividend - Interest on Securities-Casual Income – Deduction to be made from Income from Other Sources - Computation – Problems.	The students can 1. able to know about income from other sources in detail 2. able to understand the Preparation of Dividend incomes 3. able to understand the Preparation of Casual incomes.	15
3	Set-off and carry forward of losses: Introduction - Scheme of set-off and carry forward of losses – Intra-head, Inter-head set off - Order of set-off - Carry forward and set-off speculation loss - Losses under the head Capital gain - Losses in respect of owning and maintaining of race horses.	The students can 1. able to know about intra head and inter head set off losses 2. able to know about carry forward of losses 3. acquire knowledge on speculation losses in detail	15
4	Deduction from Gross total Income: Introduction - Deduction under section 80C-80G - Problems - Procedures for Assessment Returns – Types of returns – Types of Assessment – Tax Deducted at source.	The students can 1. learn the procedure for assessment. 2. understand the meaning of filing of IT returns and various types of returns. 3. be able to do the Preparation of set off and carry forward of various losses.	15
5	Assessment of Individual and AOP: Introduction - Computation of total income of an individual - Computation of taxable income- Computation of Tax Liability -Relief of Income Tax-Taxability of a member of AOP - Problems including computation of tax.	The students can 1. understand the Computation of gross total income of an individual. 2. know the Computation of taxable income. 3. understand the Computation of tax liability.	15

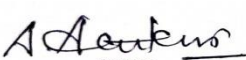
Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Income Tax Theory, Law and Practice	T.S.Reddy and Y.Hari Prasad Reddy	2019 (1)	Margham Publications, Chennai
2	Income tax Law and Accounts	Dr. H.C. Mehrotra and Dr. S.P. Goyal	2018 (36)	Sahitya Bhawan Publications,Agra.

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Income Tax Law and Practice	Pagare, Dinakar	2018 (17)	Sulthan Chand & Co., New Delhi.
2	Income Tax Law and Practice	T.Srinivasan,Mayilvaganan	2014 (1)	Science Technology Publication, Chennai.
3	Income Law and Practice	V.P.Gaur, D.B.Narang, Pooja Ghai and Rajeev Puri	2016 (29)	Kalyani Publishers, New Delhi

***For Problem paper: 40% marks for theory and 60% marks for problems**



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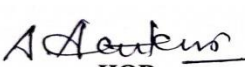
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SEMESTER VI

Programme: UG	Subject: COMMERCE (CS)
Course code:19UCCC66	Course Title: APPLICATION OF TALLY IN ACCOUNTING
Category: Core -23	Credits: 4

Objectives:

1.
- To impart practical knowledge regarding the concepts of Financial Accounting.
2.
- To get knowledge on accountingsoftware.
3.
- To get placement for students in different offices as well asCompanies

Units	Syllabus	Outcomes	Hours
1	Fundamentals of Tally. ERP 9- Introduction–salient features of Tally. ERP 9, Getting functional with Tally. ERP 9, start up, Quitting Tally. ERP 9 – Create a Company, select a Company, Alter a Company, Shut a Company – Company Features – Configurations – GST	The students can , 1. Gain thorough knowledge on electronic accounting. 2. Acquire knowledge on company features and GST. 3. Acquire the knowledge of company creation.	18
2	Create Accounting Masters in Tally. ERP 9 –Groups- Pre-defined Groups of Accounts, Creating Single Group, Creating Multiple Groups, Displaying Groups, Altering Group- Ledgers- Creating single ledger, Creating Multiple Ledger, Displaying Ledger, Altering Ledger.	The students can , 1. Identify the groups of account. 2. Create and work with multiple groups. 3. Create multiple ledgers and alter ledgers.	18
3	Creating Inventory of masters in Tally. ERP 9- Stock Groups-Creating Single, Multiple Stock Group, Displaying and Altering Stock Groups. Stock Categories –Creating Single, Multiple Stock Categories, Displaying and Altering Stock Category- Units of Measure, Godowns- Creating Single Multiple Godowns, Displaying and Altering Godowns-Stock Items- Creating Single, Multiple Stock Items, Displaying and Altering Stock Items.	The students can , 1. Create Stock groups and categories. 2. Create single and multiple godowns. 3. Display and alter stock items.	18
4	Voucher Entry In Tally. ERP 9- Voucher Types- Predefined vouchers in Tally. ERP 9, Creating Voucher Type, Displaying voucher Type, Altering Voucher Types – Financial Statements – Balance Sheet, Profit & loss A/c, Trial balance.	The students can understand, 1. The Voucher Types. 2. The procedure for displaying and altering the voucher types. 3. The accounting entries in Financial Statements.	18
5	Accounting Books & Reports ERP 9- Cash book, Bank Book, Purchase Register, Sales Register, Journal Register, Debit Note Register, Credit Note Register, Day Book, Statistics, Bank Reconciliation Statement.	The students can understand, 1. The Accounting registers. 2. The concept of BRS. 3. The process of verifying entries on Daybook.	18


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Tally Practical

1.
- Preparation of Trial balance
2.
- BalanceSheet
3.
- Final A/c with SimpleAdjustment
4.
- SubsidiaryBooks
5.
- Petty CashBook
6.
- Creation of Stock Item, Stock Groups and StockCategories
7.
- Sales Invoice
8.
- Bank Reconciliation StatementPreparation

*Theory - 2hrs and Practicals -4hrs

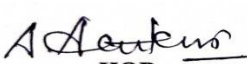
*Internal 25 marks for theory and external 75 marks for practicals

*There is external examination for Practical only Text Books

Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Comdex Computer and Financial Accounting with Tally 9.0 Course kit with CD,	Gupta Vikas	2012 (1)	Dream Tech Publications, New Delhi
2	Tally(VAT & TDS enabled)	C.NellaiKannan	2013 (4)	Nels Publications, Tirunelveli.
3	Implementing Tally 9.0	A.K.Nadhani K.K.Nadhani	2007 (1)Reprint 2009	BPB Publications, New Delhi

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Tally ERP 9 in Simple Steps	Editorial Board	2014 (1)	Dream Tech Publications, New Delhi


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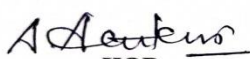
Degree – PG Subject: PG & Research Department of Commerce

PROGRAMME OUTCOMESS (POS):

PO1	Provide Practical knowledge on Office Automation, Business Statistics, Tally ERP 9 and Taxation to solve real time problems.
PO2	Helps to identify, formulate, analyze and interpret data by applying significant thinking to solve complicated problems in relevant domain disciplines.
PO3	To use research based knowledge and applies research methodologies to explore the multifarious Problems and compute valid results.
PO4	Ability to understand the cost and corporate accounting principles and techniques, and the methods of using the current scenario.
PO5	To understand the need for online learning and usage of e-content of MHRD in the context of technological updation.

PROGRAMME SPECIFIC OUTCOMESS (PSOs):

PO1	To pursue higher studies
PO2	Helps to participate in the entrepreneurship activities in the modern commercial world.
PO3	To participate in the Research and Development activities.
PO4	To analyze the research, sample design and the research process.
PO5	To identify the innovative solutions for the existing real time problems.


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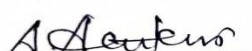
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DEPARTMENT OF COMMERCE (CORPORATE SECRETARYSHIP)

Degree PG Subject: COMMERCE Programme structure (w.e.f 2019-2020)

Sem	Category	Course code	Course title	Hours/week			Credits	Page. No
				L	P	T		
1	Core - 1	19PCOC11	Management Accounting	6	0	0	4	
1	Core - 2	19PCOC12	Advanced Business Statistics	6	0	0	4	
1	Core - 3	19PCOC13	Management Concepts and Organizational Behavior	6	0	0	4	
1	Core - 4	19PCOC14	Office Automation	6	0	0	6	
1	Core – 5	19PCOC15	Modern Marketing Management	6	0	0	4	
2	Core - 6	19PCOC21	Financial Management	6	0	0	4	
2	Core - 7	19PCOC22	Corporate Legal Frame Work	6	0	0	4	
2	Core - 8	19PCOC23	Operations Research	6	0	0	6	
2	Core - 9	19PCOC24	Business Environment	6	0	0	4	
2	Core - 10	19PCOC25	Retail Management	6	0	0	4	
3	Core - 11	19PCOC31	Advanced Corporate Accounting	6	0	0	4	3
3	Core - 12	19PCOC32	Taxation and Tax Planning	6	0	0	4	4
3	Core - 13	19PCOC33	Research Methodology	6	0	0	6	5
3	Core - 14	19PCOC34	Security Analysis and Portfolio Management	6	0	0	4	6
3	Core -15	19PCOC35	Strategic Management	6	0	0	4	8
4	Core - 16	19PCOC41	Advanced Cost Accounting	6	0	0	4	9
4	Core -17	19PCOC42	Computerized Accounting Packages-Tally ERP 9 (4 +2)	6	0	0	6	10
4	Core - 18	19PCOC43	Human Resource Management	6	0	0	4	12
4	Core - 19	19PCOC44	Financial Services	6	0	0	4	13
4	Core - 20	19PCOCP1	Project	6	0	0	6	14
			Total	120			90	


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Ariakulam, Thoothukudi NH, Maharajanagar Post, Tirunelveli-627011, TamilNadu
Semester I

Programme: PG	Subject: MANAGEMENT ACCOUNTING
Course code: 19PCOC11	Course Title: M.Com
Category: Core - 1	Credits: 4

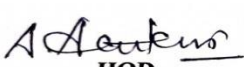
- Objectives:
1. To help the students to learn the process of accounting in management.
 2. To help the students to gain knowledge on cash and fund flow analysis.
 3. To make the students to prepare the budget for concerns.

- Outcome:
- After having completed this course the candidates are able
1. To analyse the relationship between Cost, Volume & Profit analysis.
 2. To prepare functional and operating budgets.
 3. To acquire knowledge on variance and its types.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Introduction and Financial Statement Analysis Management Accounting: Definition, Scope, Objectives, Functions, Advantages and Limitations - Management Accounting Vs. Financial Accounting - Management Accounting Vs. Cost Accounting - Tools of Management Accounting - Installation of Management Accounting system - Organization of Management Accounting – Tools of financial statement analysis: Comparative analysis, Common size analysis	18
2	Funds Flow analysis and Cash Flow analysis Funds Flow Analysis: Concept of fund - Procedure for preparation of Funds Flow Statement – Cash Flow Analysis: Procedure for preparation of Cash Flow Statement as per AS3 – Differences between Funds Flow Statement and Cash Flow Statement	18
3	Marginal Costing and Break Even Analysis Marginal Costing - - Important concepts – Marginal costing and Absorption costing – Break Even Analysis - Cost Volume Profit Analysis – Managerial Applications of Marginal costing	18
4	Standard costing and Variance Analysis Standard cost and Standard costing - Types of cost -Determination of standard cost- Favorable and Unfavorable variances- Controllable and uncontrollable variances – Analysis of variances: Direct Material, Direct Labour, Overhead , Volume variances and Sales variances	18
5	Budgetary Control Budget – Budgeting – Budgetary Control - Functional budgets: Sales, production, production cost, purchases, purchase cost and cash budget – Fixed and Flexible Budget – Master budget - Zero Base Budgeting performance budgeting.	18

Reference Books:

Sl.No	Title of the Book	Author	Edition, Year	Publication
1.	Management Accounting	R.S.N.Pillai&Bagavathy	1 st edition, Reprint 2015	S.Chand& Company Ltd .New Delhi
2.	Introduction to Management Accounting	HorngrenCharles.T	6 th edition,2015	Prentice Hall of India Pvt Ltd, New Delhi
3.	Fundamentals of Management Principles and Problems	VanhomeJames.C Wachowic2 John.M	8 th edition, 2014	Prentice Hall of India Pvt Ltd. New Delhi



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SEMESTER I

Programme: PG	Subject: ADVANCED BUSINESS STATISTICS
Course code: 19PCOC12	Course Title: M.com
Category: Core - 2	Credits: 4

Objectives:

- 1. To obtain the knowledge on Statistics
- 2. To make the students to know the sampling techniques.
- 3. To make the students to use the Non-Parametric Tests.

Outcome:

After having completed this course the candidates are able

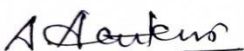
- 1. To communicate quantitative data..
- 2. To create quantitative models to solve problems.
- 3. To formulate complete, concise and correct statistical tools.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Probability Distribution: Theoretical Distribution - Binomial, Poisson, and Normal Distributions and their applications to business.	18
2	Statistical Inference: Test of Hypotheses: – Standard error and sampling Distribution - procedure for testing of Hypothesis- Two tailed and one tailed Test of Hypothesis – Assumptions of the Parametric data- Z test-One sample T Test-Independent Sample T test– Paired sample T Test - Analysis of Variance (ANOVA)	18
3	Non Parametric Tests: Chi-square tests-Sign tests-Kruskal-Wallis test- Mann Whitney U test-	18
4	Statistical Decision Theory: Decision making Environments – Criteria for making decision under condition of risk and uncertainty- Expected value approach.	18
5	Statistical Quality Control: Control charts for variables and attributes-Acceptance sampling.	18

Reference Books:

Sl.No	Title of the Book	Author	Publication
1.	Fundamentals of Statistics-	Gupta, S.C.,	Sultan Chand and Sons
2.	Statistics for Management,	Levin, R.I. and D.S. Rubin,	Prentice-Hall of India.
3.	Theory and Problems of Statistics,	Spiegel, M.R.	Schaum Publishing Company
4.	Complete Business Statistics,	Aczel, Amir D.,	McGraw Hill,
5.	Basic Statistics for Business and Economics,	Kazmeir Leonard J., Norval F. Pohl,	McGraw Hill International
6.	Statistical Methods	Gupta.S.P	Sultan Chand and Sons

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SEMESTER I

Programme: PG	Subject: MANAGEMENT CONCEPTS AND ORGANISATIONAL BEHAVIOUR
Course code: 19PCOC13	Course Title: M.com
Category: Core- 3	Credits: 4

Objectives:

1. To help the students to learn the process of strategic decision making
2. To make the students to know the implementation and evaluation of corporate policies.
3. To provide the specialized knowledge to the students on Strategic Management.

Outcome:

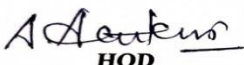
After having completed this course the candidates are able

1. To analyze the behavior of individuals and groups in organizations in terms of organizational behavior models and concepts.
- 2.To apply organizational behavior concepts, models and theories to real life management situation through analysis.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Management- Definition- Functions of manager- Management function - Control, nature process in management– Planning, organizing, Authority responsibility, Powers of delegation, Decentralization, Staffing directing, Co-ordinating, Control- nature, process and techniques.	18
2	Organizational behaviour- evolution, Development, relationship between organization behavior and management, Attitudes, Perception, Learning, Personality, Transaction analysis Motivation- Meaning, concepts, Theories of motivation, Motivation and Morale	18
3	Group dynamics- Definition, importance, Types of groups, Group formation and development, - Composition, Performance, Leadership- Styles, theories.	18
4	Organizational change and development –Planned change- resistance to change and managing change- Organizational development (OD) meaning, objectives, models and OD interventionism	18
5	Quality of working life (QWL)- Evolution and development of constituents of Quality of work life QWL in Indian context International organizational behavior- cultural differences and similarities, individual behaviour in International organization- Group behaviour- Organisation characteristics- organization change and managerial career.	18

Reference Books:

Sl.No	Title of the Book	Author	Publication
1.	Principles of Management-	L.M Prasad	
2.	Organizational Behavior	- S.S.Khanka	S.Chand& Company Ltd-
3.	Organizational Behavior-	Stephen P.Robbins-	Pearson Education SinaporeP.Ltd.,
4.	OrganisationalBehaviour,	Stephens P.Robbins-	Prentice Hall
5.	Organizational Behavior	Aswathappa	Himalaya Publishing House
6.	Organizational Behavior-.	John W.Navstrom and Keith Davis	Tata McGraw Hill.


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SEMESTER I

Programme: PG	Subject: OFFICE AUTOMATION
Course code: 19PCOC14	Course Title: M.com
Category: Core - 4	Credits: 6

- Objectives:
1. To help the students to learn access.
 2. To make the students to learn modern methods of office automation through computer.
 3. To provide the specialized knowledge to the students on Business Engineering and ERP

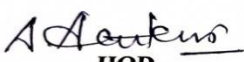
- Outcome :
- After having completed this course the candidates are able
1. To perform the word, excel and PowerPoint operations.
 2. To impart practical knowledge in handling computers.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	MS-Word 10 Page formatting-working with columns-constructing high quality tables-working with complex documents-mail merge-publishing online forms.	18
2	MS-Excel Creating Excel worksheets-entering and editing cell entries, working with numbers, changing worksheet layout, other formatting options-printing in Excel-using functions and reference- naming ranges-creating charts- using custom and special effects-using financial and statistical functions- calculation of mean,mode, standard deviation,range, correlation & regression.	18
3	MS-Access Objectives of Access Database-parts of Access window-starting Microsoft Access - creating a new database-creating a database through table wizard-creating table through Design window-Query-forms-Report.	18
4	MS-Power point Creating power point presentation: creating a basic presentation-building presentation modifying visual elements-formatting and checking text-adding objects-applying transitions animation effects-preparing handout-taking the show on the road.	18
5	Business Engineering and ERP Business engineering-introduction-significance-principles-Enterprise Resource Planning (ERP)-introduction-evolution-integrated system approach-business benefits-ERP in business processes.	18

Reference Books:

Sl.No	Title of the Book	Author	Edition, Year	Publication
1.	“Office 2010,Computer Reference”	Stephen L. Nelson,	2010	Tata McGraw Hill Publishing company Ltd.
2.	“Enterprise Resource Planning	Sumner Mary-	I Edition 2012.	Pearson Education, inc.
3.	“MS-Office 2010”	Gini Courter &AnnettelMaraquis	2010	BPB Publishing.
4.	”Enterprise Resource Planning”,	Alexis Leon,	II Edition,2007.	Tata McGraw Hill Publishing company Ltd.
5.	“Enterprise Resource Planning- Concept and Practice”	GargVinodkumar, Venkitakrishnan.N. K.	II Edition	PHI Learning2009.

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SEMESTER I

Programme: PG	Subject: MODERN MARKETING MANAGEMENT
Course code:19PCOC15	Course Title: M.com
Category: Core - 5	Credits: 4

Objectives:

1. To enable students to understand the conceptual aspects of modern marketing management.
2. To know the marketing opportunities and marketing research.
3. To obtain knowledge on Marketing Strategies

Outcome:

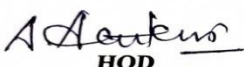
After having completed this course the candidates are able

1. To formulate a marketing plan like marketing objectives, marketing mix, marketing strategies etc.
2. To inscribe a business plan for an entrepreneurial start up venture.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Introduction: Concept, nature, scope and importance of marketing; Marketing concept and its evolution; Marketing in economic development - Is marketing a science or art-Marketing mix; Strategic marketing planning – an overview. Issue and Developments in marketing: Social, ethical and legal aspects of marketing; Marketing of Services; International marketing; Green marketing; Cyber marketing;MLM-Relationship marketing and other developments in marketing.	18
2	Product Decisions: Concept of a product; Classification of products; major product decisions; product line and product mix; Branding; Packaging and labeling; Product life – cycle – strategic implications- Expansion of product mix- positioning the product- Trading up and Trading down - New product development and consumer adoption process.	18
3	Marketing Research – Marketing Environment –Marketing Information System – Difference between Marketing Research and Marketing Information System .Pricing Decisions: Factors affecting price determination; Pricing policies and strategies; Discounts and rebates.	18
4	Distribution Channels and Physical Distribution Decisions; Nature, functions, and types of distribution channels; Distribution channel intermediaries; Channel management decisions; Retailing and wholesaling.	18
5	Promotion Decisions: communication process; Promotion mix – advertising, personal selling, sales promotion publicity and public relations; Determining advertising budget; Copy designing and its testing; Media selection; Advertising effectiveness; Sales Promotion – tools and techniques.	18

Reference Books:

Sl.No	Title of the Book	Author	Publication
1.	Marketing Management – Analysis, planning, implementation and control	Kotler, Philip:	Prentice Hall New Delhi.
2.	Marketing: A Managerial Introduction:	J.C. Gandhi,	McGraw Hill Publications
3.	Product Management in India	Majumdar, Ranauj;	Prentice hall, New Delhi.
4.	Marketing management,	Ramaswamy, V.S and Namakumari,S;	Macmillan India, New Delhi.


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(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)
(A branch of Sri Ramakrishna Tapovanam, Tirupparaithurai)
Ariakulam,Thoothukudi NH, Maharajanagar Post,Tirunelveli-627011, TamilNadu
SEMESTER II

Programme: PG	Subject: FINANCIAL MANAGEMENT
Course code:19PCOC21	Course Title: M.Com
Category: Core - 6	Credits: 4

Objectives:

1. To set a base for financial management
2. To learn the importance of capital structure & capital budgeting
3. To make the students to know about the investment decisions.

Out come:

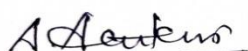
After having completed this course the candidates are able

1. To understand the overall importance of finance functions and management functions.
2. To give advice to the management regarding expansion of business.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Financial Management –Meaning –Nature and scope of finance –Objectives - Functional definition–interface with other disciplines - Profit Vs. Wealth maximization –Finance functions –Functions and role of Finance Manager – Time value of money- valuation of financial securities.	18
2	Capital Budgeting –Investment decisions - Evaluation of investment proposals–inflation and capital budgeting- NPV, IRR,ARR _ Payback period – Profitability Index –NPV and IRR comparison _ Capital rationing –Risk analysis Adjusting risk factors.	18
3	Cost of Capital –Significance, Importance and concepts –Cost of Debt –Preference capital –Equity capital –Retained earnings –Combined cost of capital (Weighted) - Cost of equity –CAPM.	18
4	Capital structure theories –Traditional and MM hypothesis –Determining capital structure in practice - Bankruptcy and capital structure – Operating, financial and combined leverage –Measurement of Leverages –Effects of operating and financial leverage on profits –Significance of leverage	18
5	Working capital Management –Meaning –Significance –Types of working capital – Estimation of Working capital requirements –Management of cash –Dividend policies – Issues in dividend decisions –Walter model –Gordon’s–M.M model hypothesis forms of dividend – determinants of dividend policy.	18

Reference Books:

Sl.No	Title of the Book	Author	Edition, Year	Publication
1.	Financial Management	Khan.M.Y and Jain P.K	4 th edition, 2009	TataMcGrawHill Publilshing Co,Ltd.New Delhi
2.	Financial Management Theory and Practice	Prasanna Chandra	5 th edition, 2013	TataMcGrawHill Publilshing Co,Ltd,Bangalore
3.	Financial Management	I.M.Pandey	8 th edition,2005	Vikas Publishing House Pvt,Ltd New Delhi
4.	Financial Management	S.C.Kuchhal	16 th edition,2005	Sahitya Bhawan Publication, Allahabad
5.	Fundamentals of Financial Management	James Van Horne.L John.M,Wachowicz	5 th edition, 2008	TataMcGraw Hill Publishing Co,Ltd. New Delhi
6.	Financial Management Principle and Practice	SR.S.N.Maheswari	1 st edition 1981, Reprint 2005	Sultan Chand And Sons New Delhi
7.	Financial Management Theory and Practice	R.K.Sharma, Gupta Shashi	6 th edition, 2005	Kalyani Publishers
8.	Globalization of Financial Markets	G.S.Batra	2005	Deep and Deep Publications, New Delhi
9.	Financial Management	A.Murthy	4 th edition, 2005	Margham Publications


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SEMESTER II

Programme: PG	Subject: CORPORATE LEGAL FRAMEWORK
Course code:19PCOC22	Course Title: M.Com
Category: Core - 7	Credits: 4

Objectives:

1. To help the students to learn about consumer awareness.
2. To make the students learn the significance of various acts.
3. To obtain knowledge on Environmental Legislation.

Outcome:

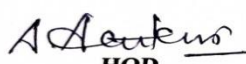
After having completed this course the candidates are able

1. To acquire practical knowledge of Business and Commercial Law.
2. To understand the legal environment of Business.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Provisions of Companies Act 2013 relating to Company Administration –Board of Directors–Manager –Managing Director –Provisions relating to various types of meetings and their related items –powers, duties and liabilities of Directors, winding up of Companies – Corporate Governance.	18
2	Payment of Wages Act - Definition-Rules for payment of wages- deduction from wages-maintenance of registers and records– Payment of Bonus Act – Industrial Disputes Act, - ingredients of industrial disputes - schedules Conciliation -Sale of Goods Act 1930.	18
3	Foreign Exchange Management Regulation Act1999 , Objective and definitions under FEMA –Dealings in foreign exchange –holding of foreign exchange etc. current account transactions, capital account transactions –export of goods and service realization and repatriation of foreign exchange –Exemptions authorized person –penalties and enforcement –Compounding of offences –Directorate of enforcement –Appellate Tribunal etc.	18
4	Consumer Protection Act –Objectives of the act- definitions- Consumer Protection CouncilConsumer rights, Procedures for Consumer grievances redressal, Types of consumer Redressal Machineries and Forums –Competition Act 2002 –Cyber-crimes, IT Act 2000 and 2002, Cyber Laws, Introduction of IPR –Copy rights, Trade Marks, Patent Act.	18
5	Environmental Legislation Legal and regulatory frame work –procedures for obtaining various environment clearances – role and function of Environments of Environment Tribunal / Authority –Appearance before Environment Tribunal / Authority –Environment Audit.	18

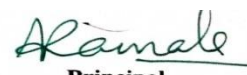
Reference Books:

Sl.No	Title of the Book	Author	Edition, Year	Publication
1.	Business Law	N.D.Kapoor	10 th edition,2008	Tata McGrawHill, New Delhi
2.	Employmental Studies	S.Muthiah, M.Ramalakshmi P.Senthil Kumar	2010	Ramalakshmi Publications,Tirunelveli
3.	Corporate and Allied Laws	Dr.G.K.Kapoor	2008	Sulthan Chand & Sons, New Delhi
4.	Law, Ethick & Commuication	Dr.G.K.Kapoor & Dr.C.B.Gupta	2 nd edition,2009	Sulthan Chand & Sons, New Delhi
5.	Company Law	Dr.G.K.Kapoor	2009	Sulthan Chand & Sons, New Delhi
6.	Elements of Mercantile Law	N.D.Kapoor	36 th Edition, 2014	Sulthan Chand, New Delhi
7.	Companies Act, 2013 (Supplement to Elements of Mercantile Law)36 th Revised Edition 2014	N.D.Kapoor	36 th Edition, 2014	Sulthan Chand, New Delhi


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SEMESTER II

Programme: PG	Subject: OPERATIONS RESEARCH
Course code:19PCOC23	Course Title: M.Com
Category: Core - 8	Credits: 4

Objectives:

1. The objective of the course is to acquaint the students with the use of quantitative models in decision making.
2. To identify the Solution methods in Various Programming
3. To make the students to acquire knowledge on replacement of capital assets.
4. Out Come:

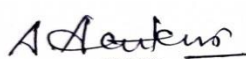
After having completed this course the candidates are able

1. To solve the large scale integer programming problems.
2. To identify the optimal operational research models.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	INTRODUCTION AND LINEAR PROGRAMMING: Operation Research-Quantitative Approach to Decision Making - Nature and Significance of OR in Decision Making-Models in Operations Research- Application Areas of Operation Research- Linear Programming-General Concepts -Definitions - Assumptions in Linear Programming - Limitations in Linear Programming - Applications of Linear Programming - Formulation of LP Problems - Solution Methods : Graphical method (maximization and minimization)- Simplex method (maximization and minimization(Big M Method))	18
2	TRANSPORTATION Concepts- Formulation of Transportation Problem- Balanced and Unbalanced Problems-Minimization and Maximization Problems, Finding IBFS - Northwest Corner Rule(NWCR) , Least Cost Rule (LCR) and Vogel's Approximation-Optimality Tests Method(VA-Modified Distribution method (MODI).	18
3	ASSIGNMENT PROBLEMS Concepts - Mathematical Formulation of an Assignment Problem - The Assignment Algorithm (Hungarian Assignment method)- Balanced and Unbalanced Assignment Problems- Minimization and Maximization Problems-Restricted and Reserved routes / choice - Travelling Salesman Problem as an Assignment Problem.	18
4	PROJECT MANAGEMENT Introduction- Types of Networks - CPM : Critical Path Method and PERT: Programme Evaluation Review Technique –Basic differences between CPM and PERT - Drawing a network - Obtaining of Critical Path- Time estimates for activities.-Probability of completion of project- Determination of floats (total, free, independent)	18
5	QUEUING MODELSAND SIMULATION Queuing Models- Introduction, Concepts, Terminology - General structure of queuing system - Operating Characteristics of Queuing system - Poisson-exponential single server model(finite population)- Simulation - Introduction - Meaning - Objectives - Advantages and disadvantages - Monte-Carlo method of simulation.	18

Reference Books:

Sl.No	Title of the Book	Author	Edition, Year	Publication
1.	Problems in Operations Research	P.K.Gupta,D.S.Hira	First edition, 1991, reprint 2004	Sulthand Chand and Sons, New Delhi
2.	Operations Research	Taha.A.Hamdy	7 th edition, 2001	Aprentice Hall of India, New Delhi
3.	Operations Research	Manmohan, R.K.Gupta, Kantswarup	First edition, 2005	Sultand Chand And Sons, New Delhi
4.	Operations Research	H.M.Natarajan, P.Bala Subramani, A.Tamilarasi	2006	Pearson Education South Asia
5.	Operations Research	S.D.Sharma	21256	Kedarnath Ramnath and Co


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SEMESTER II

Programme: PG	Subject: BUSINESS ENVIRONMENT
Course code:19PCOC24	Course Title: M.Com
Category: Core - 9	Credits: 4

Objectives:

1. To help the students to learn about various types of business environments.
2. To help the students to identify the business environment.
3. To make the students to obtain knowledge on Public Sector Growth activities.

Outcome:

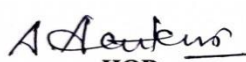
After having completed this course the candidates are able

1. To understand the government policy and its impact on business environment.
2. To identify and apply regularities in Insurance Industry.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Business environment –Meaning –Types of environment –Internal and external environment. Environment analysis and forecasting –Techniques for environmental analysis– Approaches to environmental analysis – Types of forecasting – Techniques for environmental forecasting – Benefits of environmental analysis – Limitation of environmental forecasting.	18
2	Business and society –Business ethics and values –Culture and business. Corporate governance –Need and importance of corporate governance –Principles of good corporate governance –Corporate transparency –Corporate accountability –Recommendations of Birla committee. Industrial policy–Industries (Development and Regulation Act)	18
3	Public sector –growth and performance –the new public sector policy –Organization of public enterprises –government control over public enterprises. Pricing policy of public enterprises – private sector – joint sector – co-operative sector. Privatisation and disinvestment –Arguments against privatisation –Rengarajan committee on disinvestment – Privatisation in India. Industrial sickness nature and causes of industrial sickness – Suggestions for exaltation of sick units	18
4	Globalisation of business – Stages of globalisation – Essential conditions of globalisation – Pros and cons of globalisation –WTO and India International investments – Types of foreign investments -Players in International Business–Regulation of foreign investments –Foreign investments by Indian companies –Multinational corporations- Challenges of International Business.	18
5	Social responsibility of business – Nature and model of social responsibility- Social orientation of business –Responsibilities of business to different sections –Arguments for and against social movement – Barriers to social responsibility- Evolving Idea of social responsibility- Social Audit- nature- evaluation- organization- benefits.	18

Reference Books:

Sl.No	Title of the Book	Author	Edition, Year	Publication
1.	Business Environment	Dr.Namitha Gopal	2 nd edition, 2014	Tata McGrawHill, New Delhi
2.	Business Environment	Dr.C.B.Gupta	1 st edition 1999, reprint 2005	Sulthan Chand & Sons, New Delhi
3.	Business Organisation & Management	C.B.Gupta	1 st edition 1987, reprint 2009	Sulthan Chand & Sons, New Delhi
4.	Values & Ethics in Business	Dr.C.B.Gupta	2009	Sulthan Chand & Sons, New Delhi
5.	Business Environment	Francis Cherunilam	1990	Himalaya Publishing House,Nagpur
6.	Organisational Behaviour	L.M.Prasad	1994	Sulthan Chand and Sons, New Delhi
7.	Organisational Behaviour	Uma Sekaran	2 nd edition, 2005	TataMcGraw Hill, New Delhi
8.	Essentials of Business Environment	K.Asathappa	8 th edition , 2006	Himalaya Publishing House, New Delhi


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SEMESTER II

Programme: PG	Subject: RETAIL MANGEMENT
Course code:19PCOC25	Course Title: M.Com
Category: Core - 10	Credits: 4

Objectives:

1. Aims at providing the students a comprehensive introduction to the areas of retail management.
2. Equipping the students with advanced tools and techniques for making management decisions.
3. To make the students to gain knowledge on retail management.

Outcome :

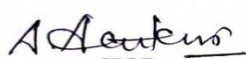
After having completed this course the candidates are able

1. To analyse the performance of Retail Industry.
2. To identify the design, implementation and assessment of retailing strategies.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Introduction: – Meaning – Concepts – Formats of Retailing – Functions – Importance – Building and sustaining Relationship in Retailing-Retail trends in India.	18
2	Retail Merchandising: - Basics of Retail Merchandising – Process –Methods – Developing merchandise plans -Retail Merchandise Mix – Merchandise buying – Analysing – Financial merchandise management- Merchandise Performance.	18
3	Retail location strategy: - Importance of location decisions – Retail Franchising – Types of Retail location and site locations – Determining Factors – Retail location theories - Trading Area analysis – Portfolio management - Strategic Retail Planning Process	18
4	Retail Market Segmentation: - Market segmentation – Benefits of market segmentation – Segmenting, targeting and positioning – Criteria for effective market segmentation – Dimensions of segmentation.	18
5	Retail store Operation: - Elements of Retail store – Operations – Management of Retail outlet – Role of centralized retailers – Operations master schedule (OMS) – Store Maintenance.	18

Reference Books:

Sl.No	Title of the Book	Author	Edition, Year	Publication
1.	Retail management” A Global Perspective Text and Cases	Dr.Harjit Singh	2006	Sultan Chand Publications
2.	Retail Management”	Chetan Bajaj”, Rajnish Tuli and Nidhi V Srivastva	2010	“Oxford University Press.
3.	Retail Management – Functional and Practices,	Gibson.G.Vedamani	1998	Jaico Publishing house.
4.	Retail Management	Suja Nair,	2001	Himalaya Publishing house
5.	Retail Marketing management	David Gilbert	2003	Pearson Education low price Edition, New Delhi 2008.


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SEMESTER III

Programme: PG	Subject: COMMERCE
Course code:19PCOC31	Course Title: ADVANCED CORPORATE ACCOUNTING
Category: Core – 11	Credits: 4

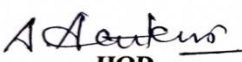
Objectives:

1.
- To gain knowledge and understand the concepts and practices of companyaccounts.
2.
- The students shall have a comprehensive understanding on the advanced issues in accounting.
3.
- The students shall acquire a thorough knowledge in bankingaccounts

Units	Syllabus	Outcomes	Hours
1	Valuation of Goodwill and Shares- Factors affecting valuation of goodwill -methods of evaluating – Valuation of goodwill - Need for valuation- Methods of valuation of shares-	The students can understand, 1. Understand the factors affecting valuation of goodwill. 2. The methods of evaluating of shares. 3. The methods of valuation of goodwill.	18
2	Amalgamation - Meaning - Amalgamation and absorption Types of amalgamation– purchase consideration- Absorption and Reconstruction of Companies - internal - External problems.	The students can understand, 1. The concept and types of amalgamation. 2. The calculation of purchase consideration. 3. The concept of absorption and reconstruction.	18
3	Holding Company Accounts - Meaning –Objectives – Advantages - minority interest-Cost of control-capital and revenue profit- revaluation of assets and liabilities- treatment of dividend - sale of shares- share premium- preliminary expenses- consolidated Balance sheet- problems.	The students can understand , 1. The calculation of minority interest. 2. The treatment of dividend. 3. The preparation of consolidated balancesheet.	18
4	Accounts of Banking Companies - Meaning – Objectives –Advantages- legal provisions- Disposal of non-banking assets- restrictions on commission and dividend- CRR and SLR- Money at call and short notice- Acceptances- Advances - Endorsements- Bill for Collection- Rebate on bill discounted problems.	The students can understand, 1. The legal provisions of banking companies. 2. The calculation of CRR and SLR 3. The concept of acceptance, advances and endorsements.	18
5	Accounts of Life and General Insurance Companies Meaning – Objectives –Advantages – Types of insurance- Annual accounts- Consideration for annuities granted – determination of profit- balance sheet – accounts of general insurance – Reserve for unexpired risk - problems.	The students can understand, 1. The concept of life and general insurance. 2. The determination of profit. 3. The preparation of insurance account.	18

Reference Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Advanced Accounting	Jain S.P Narang K.L	Reprint 2002	Kalyani Publishers, Chennai
2	Advanced Accountancy	Gupta R.L Radhaswamy.M	2014 (17)	Sultan Chand and Sons, New Delhi
3	Fundamentals of Advanced Accounting Volume – II	R.S.N Pillai, Bagavathi,Uma.S	2014 (3)	Sultan Chand and Sons, New Delhi
4.	Advanced Accountancy Volume – II	M.Wilson	2009	Scitech Publications, New Delhi
5	Corporate Accounting	T.S.Reddy Dr.A.Murthy	2015 (6)	Margham Publications, Chennai


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SEMESTER III

Programme: PG	Subject: COMMERCE
Course code:19PCOC32	Course Title: TAXATION AND TAX PLANNING
Category: Core - 12	Credits:4

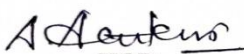
Objectives:

1.
- To make the students to gain knowledge on the legitimate way of taxplanning
2.
- To make the Students to understand the objectives oftaxation.
3.
- To enable the Students to compute different tax liabilities for individuals and corporate bodies.

Units	Syllabus	Outcomes	Hou rs
1	Introduction to Income Tax: Income Tax – History of Income tax in India - Basic Concepts - Definitions – Agricultural income – Scope of Total Income - Residential status and Incidence of Income Tax – Capital and Revenue – Incomes whichare exempted from Tax. Tax Planning – meaning – Tax Planning and Tax evasion - Tax saving.	The students can , 4. Understand the basic concept of IncomeTax 5. Understand canons oftaxation. 6. Be familiar with the income exempted fromtax.	18
2	Heads of Income: Heads of Income – Salary Income - Basis of Charge - Computation of Gross Salary Income – Deductions from Salary income – Problems on computation of Salary Income.	The students can understand, 4. The computation of salaryincome. 5. The treatment of allowances and perquisites. 6. The calculation of gratuity and pension.	18
3	Income from House Property: Income from House property – Basis of Charge - Computations of House Property Income – Deductions from House Property Income - Assessment of income of co-owners of House property – Income from Foreign house property – Problems –.	The students can understand, 4. The computation of gross annual value. 5. The features of unrealizedrent. 6. The computation of house property income	18
4	Income from Business and Profession: Income from Business and Profession – Definition - Basis of charge – computation of business or profession income – Deductions allowable – Depreciation allowance Disallowed deductions – Problems on computation of Business and Profession -	The students can understand , 4. The features of business orprofession. 5. The concept ofdeductions. 6. The computation of income from business orprofession.	18
5	Capital Gains and Computation of Total Income: Capital gains –Basis of Charge - Definitions–Capital assets–Transfer–computation of income from Capital Gains – Exemptions allowable from the Computation of Total Income - Deductions U/S 80- Problems - Calculation of Tax Liability.	The students can understand , 1. The meaning of capital asset and its types.. 2. The concept of Short term and Long Term Capital gains andlosses. 3. The computation of totalincome.	18

Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Income Tax Law & Accounts	Mehrotra.H.CGoyalS.P	2019(59)	SahityaBhawan Publishers, Agra.
2	Income Tax	SinghaniaK.Vinod SinghaniaMonica	2019(54)	Taxman Publications, Chennai
3	Income Tax	T.S.Reddy And A.Murthy	2019(12)	MarghamPublications,Chennai


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PCO-BOS Sri Sarada College for Women, (Autonomous) Tirunelveli 627011 Reaccredited with “A” grade by NAAC
SEMESTER III

Programme: PG	Subject: COMMERCE
Course code:19PCOC33	Course Title: RESEARCH METHODOLOGY
Category: Core – 13	Credits:6

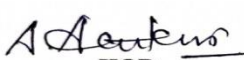
Objectives:

1.
- To make the students to plan and understand theresearch.
2.
- To make the students to understand various research design, sampling designand techniques
3.
- To enable the Students to analyse and interpret the research output in researchreport.

Units	Syllabus	Outcomes	Hours
1	Research -Meaning and purpose -types of research -Pure and applied, survey, case study experimental, exploratory -Research Design Steps in selection and formulation of research problem - steps in research design- Sample design- Sampling process- principles - Essentials of a good sample - methods ofsample - sampling error- Research in social sciences.	The students can, 1. Identify the various types of researches. 2. Understand the research design and techniques. 3. Understand the sampling designed techniques.	18
2	Methods of data collection -Primary and secondary data -observation -interview questionnaire -construction of tools for data collection -testing validity and reliability -pilot study and pre-testing - case study- Research problem - selection and formulation	The students can, 1. Understand thebasic concepts of research and its methodologies. 2. Identify appropriate researchtopics. 3. Select and define appropriate researchproblems.	18
3	Processing and analysis of data -editing - coding -transcription- tabulation - Analysis and interpretation of data-outline of statistical analysis -descriptive statistics -elements of processing through computers -packages for analysis - Documentary sources of data- schedules and Questionnaire - Interview.	The students can, 1. Organize and conduct research in systematic manner. 2. Prepare the schedules and questionnaire. 3.Acquire the knowledge on researchprocess.	18
4	Hypothesis testing - Types- parametric test- Hypothesis testing of means hypothesis testing for differences between means- limitation of tests of hypothesis, sources -Testing -sampling techniques- sampling error and sample size. Techniques of hypothesis testing	The students can, 1. Compare and contrast quantitative and qualitative research. 2. Describe sampling methods, measurement scales andinstruments. 3. Understand the limitations of hypothesis and samplingerror.	18
5	Report writing -target audience -types of reports - contents of reports - styles and conventions in reporting -steps in drafting a report - Quotations- plagiarism and acknowledgement - evaluation of research report - Presentation of report.	The students can, 1. Understand the types ofreports. 2. The drafting ofreports. 3. Understand the presentation ofreport.	18

Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Research Methodology	Saravana Vel.P	2005 (16)	KitabMahal, New Delhi
2	Research Methodology Methods And Techniques	Kothari C.R	2006 (2)	New Age International Publications, New Delhi
3	Research Methodology in Commerce	S.Mohan&R.Ilang ovan	2007	Deep & Deep Publication Pvt, Ltd, New Delhi.
4	Research Methodology	V.PanneerSelvam	2008 (1)	PHI Learning, New Delhi.
5	Research Methodology in Commerce & Management	RAO.K.V	2012 (3)	Sterling Publishers Pvt Ltd, New Delhi.


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SEMESTER III

Programme: PG	Subject: COMMERCE
Course code:19PCOC34	Course Title: SECURITY ANALYSIS AND PORT FOLIO MANAGEMENT
Category: Core - 14	Credits: 4

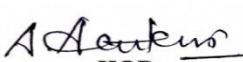
Objectives:

1. To provide the students a comprehensive introduction to the areas of securityanalysis and
portfoliomanagement.
2. To Equip the students with advanced tools and techniques for making profitable investmentdecisions.
3. To make the students to gain knowledge on Securityanalysis.

Units	Syllabus	Outcomes	Hours
1	INTRODUCTION TO INVESTMENT AND SECURITY ANALYSIS Meaning of investment – speculation and Gambling – Investment avenues -Types of investors – Investment objectives – The investment process – Security Analysis- Meaning of security – Types of securities – Meaning of securityanalysis.	The students can, 1. Be aware of meaning and importance of investment. 2. Gain knowledge on investment attributes. 3. Identify the importance of security analysis.	18
2	RISK AND RETURN Computation of return – Meaning and definition ofrisk –Types: (Systematic risk- Market risk, Purchasing power risk, Interest rate risk, Unsystematic risk- Business risk (Internal, External), Financial risk) – Minimising risk exposure. Risk measurement - Standard deviation – Meaning of Beta – Computation and interpretation – Use of beta in estimating returns. (Including simple problems)	The students can, 1. Understand the various alternatives available forinvestment. 2. Measure risk andreturn. 3. Identify the values of the equities and bonds	18
3	SECURITIES RETURN AND VALUATION ANALYSIS Fixed-Income Securities– Overview of fixed-income securities – Risk factors in fixed-income securities (Systematic and unsystematic) – Bond analysis – Types of bonds– Major factors in bond rating process – Bond returns – Holding period return -Concept of yield – Current yield – Yield-to-Maturity – Price- yield relationship – Convexity - Term structure of interest rates and yield curve – Duration - Valuation of preference shares. Stock Return and Valuation – Anticipated returns, Present value of returns, Constant Growth model, Two-Stage Growthmodel, The Three-Phase Model, Valuation through P/E ratio.	The students can, 1. Gain knowledge on the strategies followed by investmentpractitioners. 2. Understand the characteristics of different financial assets such as money market instruments, bonds andstocks. 3. Understand the benefit of diversification of holding a portfolio of assets, and the importance played by the portfolio market.	18
4	PORTFOLIO MANAGEMENT Efficient Market Hypothesis (EMH) – Random Walk theory – Forms of EMH –EMH and empirical findings – Implication of EMH on fundamental and technical analysis – Market inefficiencies. Portfolio Analysis – Selection and Evaluation – Meaning of portfolio – Reasons to hold portfolio Diversification analysis – Markowitz’s Model – Assumptions – Specific model – Risk and return optimization – Efficientfrontier – Efficient portfolios – Leveraged portfolios – Cornerportfolios – Sharpe’s Single Index model – Portfolio evaluation measures – Sharpe’s Performance Index – Treynor’s Performance Index – Jensen’s Performance Index.	The students can, 1. Apply valuation models to evaluate fixed income earning securities andstock. 2. Use different derivative securities to manage the investmentrisks. 3. Understand and evaluate major portfolio management and riskconcepts.	18
5	CAPITAL MARKET THEORY : Capital Market Theory – CAPM theory: Assumptions – CAPM Model – CapitalMarket Line (CML) – Security Market Line (SML) – Evaluation of securities – Present validity of CAPM – Arbitrage Pricing Theory (APT) – Assumptions – APTmodel – AP equation – Factors affecting return – APT and CAPM.	The students can, 1. Describe and assess perspective of economic analysis in capital market expectations. 2. Make use of professional financial tool skills and case studies for taking decisions. 3. Construct advanced portfoliosfor security analysis.	18

Reference Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1.	Investment Management	V.A.Avadhani	2001	Himalaya Publishing House, New Delhi
2.	Security Analysisand Portfoliomanagement	Donald E.Fischer	2004(6)	Pearson Publications, South Asia
3.	Investment analysis and portfolio Management	Prasanna Chandra	2008 (1)	Tata McGrawhill Publishing co ltd. New Delhi
4.	Investment	F.SharpeWilliah, Alexender, Gordon.J BelleyJeffe.R.V	2009 (5)	Prentice Hall of India Private Ltd, New Delhi
5.	Investment Management	V.K.Bhalla	2014 (6)	Sultan Chand And Sons, New Delhi


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SEMESTER III

Programme: PG	Subject: COMMERCE
Course code:19PCOC35	Course Title: STRATEGIC MANAGEMENT
Category: Core -15	Credits:4

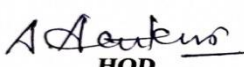
Objectives:

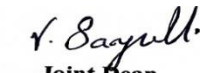
1.
- To help the students to learn the process of strategic decisionmaking
2.
- To make the students to know the implementation and evaluation of corporatepolicies.
3.
- To provide the specialized knowledge to the students on StrategicManagement.

Units	Syllabus	Outcomes	Hours
1	Strategic Planning Corporate strategic planning - Mission - Vision of the firm - Development, maintenance and the role of leader - Hierarchal levels of planning - strategic planning process. Strategic management Practice in India, Family runcorporates.	The students can, 1. Know the meaning of corporate strategicplanning. 2. Identify the vision and mission of thefirm. 3. Identify the hierarchal level of planning	18
2	Environmental & Internal Analysis General environment scanning, competitive & environmental analysis - to identify opportunities & threat - Assessing internal environment through functional approach and value chain - identifying critical success factors - to identify the strength & weakness -SWOT audit - core competence - Stakeholders' expectations,-planning-industry analysis.	The students can, 1. Expose perspective and concepts in the field of strategicmanagement. 2. Understand the principle of strategy formulation, implementation and control in organisations. 3. Develop skills for applying the concepts for the solution of business problems.	18
3	Strategy formulation Generic strategies - Grandstrategies - Strategies of leading Indian companies – The role of diversification -limitations - means and forms. Strategic management for small organisations, non-profitorganizations and large multi-product and multiple market organisations.	The students can, 1. Identify the analytical tool of strategicmanagement. 2. Understand the basic concepts and principles of strategic management. 3. Understand the concept ofstrategic management for small and non- profit organisations.	18
4	Tools of Strategy Planning and evaluation Competitive cost dynamics - experience curve BCG approach - cash flow implication. IA - BS matrix - A.D Little's Life -cycle approach to strategic planning - Business portfolio balancing - Assessment of economic contribution of strategy - Strategic funds programming.	The students can, 1. Develop and prepare organizational strategies for current business environment. 2. Devise strategic approaches for business in a globalcontext. 3. Demonstrate the knowledge and abilities in formulating strategies and strategic plans.	18
5	Strategy implementation& Control: Various approach to implementation of strategy - Matching organization structure with strategy - 7Smodel - Strategic control process - Du Pont's control mod Quantitative and Qualitative tools - Balanced score card - M.Porter's approach- Globalization - Future of Strategic Management	The students can, 1. Understand the concept of matching organization structure withstrategy. 2. Evaluate challenges in implementingstrategies. 3. Describe the practical and integrative model of strategic managementprocess.	18

Reference Books:

S. No	Title	Author/s	Year (Edn)	Publisher/s
1.	Strategic Management	Prasad.L.M	2008 (5)	Sulthan Chand & Sons, New Delhi
2.	Values and Ethics in Business	Dr.C.B.Gupta	2002	Sulthan Chand & Sons, New Delhi
3.	Essentials of Strategic Management	Hunger David.J Wheelan.L.Thomas	2011 (1)	PHI Learning Publishers, New Delhi
4.	Strategic Marketing Management	Soundarian.S	2012 (1)	MJP Publishers, New Delhi
5.	Essentials of Strategic Management	Jones.R.Gareth Hill W.L.Charles	2011 (1)	Gengage Learning publishers, New Delhi
6.	Strategic Management	R.SubbaRao	2011 (3)	Himalaya Publication House, New Delhi


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SEMESTER IV

Programme: PG	Subject: COMMERCE
Course code:19PCOC41	Course Title: ADVANCED COST ACCOUNTING
Category: Core - 16	Credits:4

Objectives:

1.

To familiarize the students with the basic concept of cost and various methods and techniques of costing.
2.

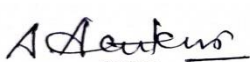
To apply cost accounting in decision making process.
3.

To enable the students to prepare cost statements, tenders and quotations.

Units	Syllabus	Outcomes	Hours
1	Cost Accounting Costing – Meaning, Definitions- Cost Accounting - Difference between cost and financial accounts –Analysis of Cost and Cost Centre – Cost concepts - Installation of Cost System – Preparation of cost sheet – Tenders and Quotations - Advanced Problems.	The students can, 1. Prepare cost sheet. 2. Identify the need for quantity level of material in business. 3. Can prepare tenders and quotations.	18
2	Contract Costing Contract Costing - Profit on Incomplete Contracts- Escalation Clause -Cost plus Contract-Work In Progress - Problems - Mechanized accounting..	The students can, 1. Understand the concept of mechanized costing. 2. Understand the procedures followed in contract costing. 3. Understand the Escalation Clause.	18
3	Job and Process Costing: Job Costing – Features- Batch Costing -Process Costing – Job Costing Vs. Process Costing – Process losses – Inter Process Profit – Equivalent production– Joint products and By Products.	The students can understand , 1. The concept of job costing. 2. Accounting in process costing. 3. The treatment of joint products and byproducts.	18
4	Operating and Service Costing Meaning-Cost unit - Characteristics - Transport costing-Objects–Service Costing - Hotel, boiler house costing , hospital costing -Canteen costing , Power House, Cinema House Costing- Problems	The students can understand, 1. The characteristics of operating cost. 2. Understand the usage of transport costing. 3. Accounting treatment in various service centers.	18
5	Cost Control Accounts -Integrated accounts - ledgers in financial books- ledgers in cost books- Control accounts- journal entries- Reconciliation of Cost and Financial Accounting - procedure for reconciliation - Memorandum reconciliation account – Cost Audit.	The students can understand, 1. The accounting in financial books and cost books. 2. The reconciliation of cost and financial accounting 3. The concept of cost audit.	18

Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Cost and Management Accounting Method Techniques and Applications	V.K.Saxena C.D.Vashist.	2005 (2)	Sultan Chand & Company, New Delhi.
2	Principles and Practice of Cost Accounting	S.P.Jain and Narang	2006 (15)	Kalyani Publications, New Delhi.
3	Cost Accounting	S.P.Iyengar	2006 (5)	Sultan Chand & Company, New Delhi.
4	Practical Costing	B.S.Khanna Pandy .I.M. Ahuja.G.K Arora.M.N	2006 (4)	Sultan Chand & Company, New Delhi.
5	Cost Accounting	R.S.N.Pillai&Bagavathi	2010 (7)	Sultan Chand & Company, New Delhi.
6	Cost Accounting	T.S.Reddy&Murthy.L	2013 (3)	Margham Publications, Chennai.


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SEMESTER IV

Programme: PG	Subject: COMMERCE
Course code:19PCOC42	Course Title: COMPUTERIZED ACCOUNTING PACKAGES- TALLY ERP 9
Category: Core -17	Credits:6

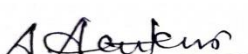
Objectives:

1.
- To impart practical knowledge regarding the concepts of FinancialAccounting.
2.
- To get knowledge on accountingsoftware
3.
- To get placement for students in different offices as well asCompanies

Units	Syllabus	Outcomes	Hours
1	Introduction to Tally New features of Tally 9.0 – Tally screen components – Creating company in Tally – company features – creating accounting ledgers – crestring inventory ledgers – creating stock item, stock group, stock category – Creating cost categories and cost centers –typesof vouchers	The students can, 1. Identify the new features of Tally9.0. 2. Acquire the practicalknowledge on Tally ERP9. 3. Create ledgers and vouchers in Tally.	18
2	POS and BRS – types of Accounting and Inventory vouchers – Trialbalance – Final accounts with adjustments – Bank Reconciliation Statement – Need and importance of BRS – Reasons for the difference between pass book and cash book – process of reconciliation – ledger creation and effective datefor reconciliation.	The students can, 1. Be aware of the accounting concepts, tools and techniques influencing business organization. 2. Can createPOS. 3. Prepare bankreconciliation statement.	18
3	TDS and TCS Features of TDS – creation of ledgers in TDS –account classification of TDS – TDS deduction for advance payment and balance payment – TDS computation report – TDS pending statement – features of TCS – TCS on contracts, license and lease – TCS reports.	The students can, 1. Create ledgers inTDS. 2. Calculate tax onTCS. 3. Be able to draft TCS and TDS report.	18
4	PAY ROLL - Features of Tally – Pay roll info – create a pay heads, gratuity pay heads, employee groups, employee salary details, units attendance – production types – pay sheet report – pay slip – pay roll statement report – pay roll register – gratuity report – pay roll with PF and ESI – Loan management in Tally Pay roll.	The students can, 1. Understand the concept of pay heads. 2. Calculate PF andESI. 3. Understand the preparation of payrollstatement.	18
5	GST – Features of GST - Ledger creation – voucher creation – Stock group –Stock Item Creation - SGST – CGST- IGST – Apportionment of Tax Rates - GST Report generation	The students can, 1. Understand the ledger and voucher creation of GST. 2. Differentiate SGST andCGST. 3. Generate GSTReport.	18

Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Comdex Computer and Financial Accounting with Tally 9.0 Course kit with CD,	Gupta Vikas	2012 (1)	Dream Tech Publications, New Delhi
2	Tally(VAT & TDS enabled)	C.NellaiKannan	2013 (4)	Nels Publications, Tirunelveli.
3	Implementing Tally 9.0	A.K.Nadhani K.K.Nadhani	2009 (3)	BPB Publications, New Delhi
4	Tally ERP 9 in Simple Steps	Editorial Board	2014 (1)	Dream Tech, New Delhi


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Internal: 50 Marks (Theory -25; Practical-25)

- a) Theory:(25 Marks) Internal mark for theory part shall be awarded asbelow:
- i) The average of the best two scores of the student fromthree tests ofanhour duration shall be averaged -- 15marks
- ii) Assignment -- 4 marks
- i) Seminars-- 6 marks

25 marks
=====

- b) Practical :(25Marks) Internal mark for Practical part shall be awarded as below:
- | | |
|-----------------------------------|------------------------------|
| RecordNote | = 5Marks |
| Program / Procedure writing (5x2) | = 10 Marks Debugging (2.5x2) |
| | =5Marks |
| Result (2.5x2) | =5Marks |
- =====
- Total 25 Marks
- =====

External: 50 Marks (Practical only)

- a) There is no external theory examination for this subject. Only practical shall be conducted as externalexamination.
- Practical mark shall be awarded as below:
- | | |
|------------------------------------|-----------|
| RecordNote | = 10Marks |
| Program / Procedure writing (10x2) | =20Marks |
| Debugging (5x2) | =10Marks |
| Result (5x2) | =10Marks |
- =====

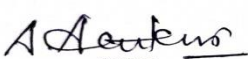
Total 50 Marks

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- b) Practical examination should be conducted by both internal andexternal examiners.
- c) Examiners are requested to select any 2 batches in the morning session and other two in the evening session.

LIST OF PRACTICALS:

1. Accounting Ledgers and Voucherscreation
2. Inventory Ledgers and VouchersCreation
3. Tax Deducted atSource
4. Tax Collected AtSource
5. Bank ReconciliationStatement
6. Point ofSales
7. TrialBalance
8. BalanceSheet
9. Accounting withGST


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SEMESTER IV

Programme: PG	Subject: COMMERCE
Course code:19PCOC43	Course Title: HUMAN RESOURCE MANAGEMENT
Category: Core -18	Credits: 4

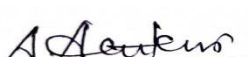
Objectives:

1.
- To understand the concept of human resource development.
2.
- To articulates the critical issues and challenges involved in contemporary human resource management
3.
- To highlights the specific issues that determine the success or failure of HRM practices

Units	Syllabus	Outcomes	Hours
1	Introduction to HRM; Human Resource Management-Meaning – Definition – Objectives –Need – H.R. Planning –H.R. Function –H.R.Philosophy – Strategic Human Resource Management –Trends in HRM – Role of HR managers	The students can, 1. Identify the functions of human resource manager. 2. Be aware of the strategic human resource management. 3. Describe the Trends in HRM	18
2	Job Design and Job Analysis: Job Design –Job Analysis – Job Description –job Specification –Recruitment –Source and Techniques – Assessment of Recruitment Programme –Selection – Procedure- Test –Basic Testing Concepts –Types of Test – Interview –Types – Interview Process –Qualities of a Successful Interviewer –Common Interviewing Mistakes – Placement	The students can understand, 1. The concept of Job Design. 2. The techniques of recruitment. 3. The Interview process.	18
3	Training: Training –Meaning –Importance –Benefits–Need –Training Vs. Development –Training Objectives – Principles –Methods –Assessment of Training Needs – Assessment Methods – Management Development – Objectives –Essential Ingredients of the Management Development Programme –Techniques of Management Development - On the Job and Off the Job Techniques – Performance Appraisal –Meaning –Need –Purpose–Methods –Essential Characteristics of an Effective Appraisal System –Uses – Problems–Advantages.	The students can understand, 1. The process of training. 2. The concept of On the Job and Off the Job Techniques. 3. The concept of Performance Appraisal.	18
4	Job Evaluation: Job Evaluation –Meaning –Objectives–Principles – Procedures –Methods –Problems – Rewards –Types –Financial Vs Non- Financial Rewards –Salary Administration –Concepts – Need – Objectives –Principles –Elements –Factors Affecting Wage/Salary Levels –Fringe Benefits – Need for Extending Fringe benefits–Objectives –Types – Non-Monetary rewards.	The students can understand, 1. The procedure of job evaluation. 2. The methods of financial rewards. 3. The need for Fringe benefits.	18
5	Industrial Relations: Industrial Relations –Meanings –Characteristics – Objectives –Functions –Conditions-Factors – Actors –HRM Vs IR –Approaches –Trade Union – Meanings – Definition – Characteristics –Functions – Methods of Achievement of IR. Objectives – Union Structure – Problems – Measures to strengthen Trade Union Movement in India –Collective Bargaining – Definition – Characteristics –Importance – Need –Principles –Essential Conditions for the Success of Collective Bargaining –Functions –Collective Bargaining Process – Grievance Procedure and Discipline Procedure.	The students can understand, 1. The meaning, features and objectives of IR. 2. Familiar with the approaches of IR. 3. Understand the measure to strengthen trade union movement.	18

Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Human Resource Management Text and Cases	Aswathappa.K	2013 (7)	McGraw-Hill Education, New Delhi
2	Human Resource Management	Dr.C.B.Gupta	2009	Sulthan Chand & Sons, New Delhi
3	Organisational Behaviour	Uma Sekaran	2009(2)	Tata Mc Graw Hill Publishing Co.Ltd, Chennai
4	Organisational Behaviour (Human behavior at work)	W.John New strom, Davis Kelth	2011(4)	Tata Mc Graw Hill publishing Co.Ltd, Chennai.


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SEMESTER IV

Programme: PG	Subject: COMMERCE
Course code:19PCOC44	Course Title: FINANCIAL SERVICES
Category: Core -19	Credits: 4

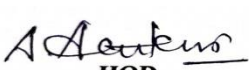
Objectives:

1.
- To enable the students to identify the types of financial services inIndia.
2.
- To understand the growth of mutual funds inIndia.
3.
- To familiar with the concepts of leasing, hire purchase, factoring andinsurance

Units	Syllabus	Outcomes	Hours
1	Introduction to Financial Services : Meaning – Scope Importance– Types of Financial Services -Financial services and Economic Environment – Players in Financial Service Sector–Management of Newissues	The students can, 1. Understand the meaning of financialservices. 2. Know the players in the financialmarket. 3. Identify the managementissues related tofinance.	18
2	Mutual Funds: Meaning- types – Functions- Advantages – Institutions – UTI-LIC-Commercial Banks – Entry of Private Sector – Performance – Growth of Mutual Funds in India – SEBI guidelines.	The students can, 1. Understand the advantages of limitation of mutualfunds. 2. Be aware of the current structure and regulation of the Indian financial servicessector. 3. Evaluate and create strategies to promote financial products andservices.	18
3	Leasing and Hire Purchase: Meaning- Concepts and Features – Types of Lease accounts- Hire Purchase Meaning – RBI guidelines – Lease vs Hire purchase – Problems and prospects of Hire Purchase inIndia.	The students can, 1. Understand the concept of leasing and hirepurchase. 2. Be aware of RBI guidelines regarding to leasing and hire purchasing. 3. Understand the problems and prospects of Hire Purchase in India.	18
4	Factoring: the Concept – Significance – factoring mechanism- factoring in India – Consumer Finance – Venture Capital – Credit rating.	The students can, 1. Understand the concept of factoring. 2. Be aware of procedures followed in factoring mechanism. 3. Obtain knowledge on venture capital and creditrating.	18
5	Insurance: Different Types – Life, Marine,Fire,Motor, Health, Pension Plans, Annuity, Rural Insurance, Insurance Laws and Regulations, IRDA Act.	The students can, 1. Understand the concept of insurance 2. Understand the typesof insurance 3. Understand the concept of IRDA act.	18

Reference Books

S. No	Title	Author/s	Year (Edn)	Publisher/s
1	Financial Services	Dr.Radha	2007(I)	Prasanna & Co, Chennai
2	Financial Services	B.Santhanam	2006(5)	Margham Publications, Chennai
3	Essentials of Financial Services	Dr.S.Gurusamy	2009(1)	TATA McGraw Hill, New Delhi.


HOD
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PCO-BOS Sri Sarada College for Women, (Autonomous) Tirunelveli 627011 Reaccredited with “A” grade by NAAC
SEMESTER IV

Programme: PG	Subject: COMMERCE
Course code:19PCOCP1	Course Title: PROJECT
Category: Core -20	Credits: 6

Guidelines for Project work

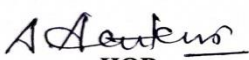
(For Certificate, Diploma, Advanced Diploma, UG, PG, and MPhil., programmes)

1. Duration of the project work shall be for a period of onesemester
2. Project work shall be carried out under the supervision of a faculty member of the department concerned or from allied department, if the work is of interdisciplinary in nature or with internal or external expert beyond the department asco-supervisor.
3. The supervisor allocation shall be made by lot by the end of 4 semester in UG, by the end of 2ndsemester in PG (April 1st week) and for MPhil., 15 days after joining the programme. The allocation details may be sent to Autonomous cell by 10th April for UG & PG and for MPhil.,30 days after joining theprogramme.
- a. The HOD shall review the coverage of different fields of the subject amongst the candidates and to see that the students should not focus on particular fields alone.
4. The candidates have to study/refer journals/previous works/focus on the proposed topic in the summer vacation and 5-10 titles of proposed project on respective subject (discipline) or on allied subject (interdisciplinary) with economic/scientific/social/local/state/national/global issues maybe submittedtotheguidebyMayend.
5. The supervisor shall guide the candidates on their choice after having reviewed proposed topics, the mindset and work culture, provided the work is of innovative in nature, affordable and with future prospective. If not satisfied with the proposed topic/due to lack of infrastructure/beyond scope and practicality, supervisor herself shall suggest the field/topic for work. Hard copy of proposed title with objectives in the prescribed format to be submitted to CoE’s Office through Dean, Autonomous in the last week ofJune
6. Parent’s undertaking/willingness may be obtained in writing by inviting the parents for department level meeting after explaining its importance, guidelines, safety precautions related to outdoor project commitmentsetc.
7. Project period – June to September. Last date for the submission of dissertation is 15thOctober
8. Project Progress Review has to be conducted in 5th July, 5th August and 5th September. Report Card for individual candidates shall be maintained at the department for audit at any time. (Proforma)
9. If a candidate fails to submit the dissertation on or before the specified date, she may submit the same on or before 15th November by paying prescribed latefee.
10. The evaluation of dissertation will be as per the University/Autonomous norms (MSU - SCAA- Page 11)
11. PG and M.Phil., students should carry out the project individually. UG students may undertake group projects with a maximum of three students in a group. The group may be of interdisciplinary nature combining students from two to three departments with the concern of the respective guides. An undertaking, in this regard, has to be submitted by the group of students with the endorsement by theguides.
12. LATEX procedure shall be followed for Mathematicsprojects.
13. **GUIDELINES ON THESIS (WITH STATIONERY ECONOMYMEASURES):**
- a. Number of Pages (inclusive of prefix andsuffix):
- i) V semester Project Maximum 40pages;
- ii) VI semester Project Maximum 60pages,
- iii) PG Projects Maximum 80 pages; Iv) MPhil., maximum 100pages.
- b. Size of the paper A4; Font Times New Roman; Title 14 Capitals/Bold; Subtitle 12 Capitals/Bold; Running matter11.
- c. Left and Right margin 1 and half inch; Top and bottom margin 1inch
- d. Line space1.5
- e. Table and Figures shall be in separate sheets (without page number). More than 1 table or figure or plate is permitted in a page. Table number followed by the title should be on the top of the respective table. Similarly Figure Number followed by title beat the bottom of the respective figures. Regarding Plates ie photographs only original photographs (printed in photo sheet) of the work carried out and scientifically relevant to be included. The size the photographs should be reduced and neatly arranged in a page with appropriate title or sub title. Plate Number followed by the title beat the bottom of the photographsconcerned.

- f. Number of copies:
 Copy 1 – Student copy – Neatly typed on one side with good binding to be submitted (to be returned immediately after examination)
- i. Copy 2 – Department copy - Neatly typed on both sides of the paper with stapler pin binding – Copies of all students have to be bound in volumes of 1 or 2 and kept in the department for reference.
- ii. For PG & MPhil., (Candidate copy - Hard bound (one side print), Autonomy (CD), Guide copy (CD), Department (CD containing all projects of the class), Central library (CD containing all projects of the class) & Hard copy of the abstract/extended abstract as OHP bound booklet.
- g. Uniform structure/composition of the thesis:

Uniformity in Prefix contents for all disciplines			
1	Wrapper page		
2	Wrapper page copy		
3	Contents		
4	Acknowledgement by the candidate		
5	Declaration by the Candidate with candidate's Photo attested by HoD		
6	Certificate by the supervisor, countersigned by HoD		
7	Evaluation Examiners Page		
Running matter structure Arts, Languages, Humanities		Running matter structure Science	
1	Abstract/Extended Abstract	1	Abstract/Extended Abstract
2	Introduction	2	Introduction
3	Review of Literature	3	Review of Literature
4	Profile of The Study	4	Materials
5	Methodology & Data collection	5	Methodology
6	Analysis and Interpretation	6	Results
7	Findings, Suggestions and Conclusion	7	Discussion
8	Bibliography(Uniform format)	8	Bibliography (Uniform format)
Uniformity in Suffix – contents			
Publications – Xerox of Abstracts/extended abstracts/Full papers			

- h. Bibliography: Arts & Science.
- i. Research article:
 Latha, P., Dhanabackialakshmi, R., Kumar, P.S. and Karuthapandian, S. 2016.Synergistic effects of trouble free and 100% recoverable CeO2/Nylon Nano composite thin film for the photocatalytic degradation of organic contaminants. Separation and Purification Technology,168(2): 124–133
- ii. Conference / Seminar / Symposium papers
 Peng, J., Zhang, X., Lei, Z., Zhang, B., Zhang, W. and Li,Q. 2009. Comparison of several cloud computing platforms. In: Proceedings of Second International Symposium on Information Science and Engineering, 23 – 27
- iii. Books
 Versteeg, H.K. and Malalasekera, W. 2007.An Introduction to Computational Fluid Dynamics. II Edn. Pearson Education Ltd., New York, pp. 517
- iv. Book Chapters
 Wade, S.E. 1981. Statistical designs for survey research. In: Stempel, G.H. and Westley, B.H. (Eds.). Research methods in mass communication.Printice Hall India Learning India Ltd., New Delhi, pp. 167
- v. Webreference
 National Institute of Mental Health.2018, July.Anxiety disorders. U.S. Department of Health and Human Services, National Institutes of Health. <https://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>
 (Author to be included first, date to be included before month, if available)


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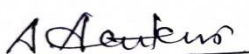
(A branch of Sri Ramakrishna Tapovanam, Tirupparaiturai)

Ariakulam, Thoothukudi NH, Maharaja Nagar Post,

Tirunelveli- 627011

DEPARTMENT OF COMMERCE (CORPORATE SECRETARYSHIP)
M.Phil Commerce

Sem	Category	Course code	Course title	Hours/week			Credits	Page No
				L	P	T		
1	Core 1	19MCOC11	Research and Teaching Methodology	4	0	4	4	1
1	Core 2	19MCOC12	Contemporary Functional Management	4	0	4	4	2
1	Core 3	19MCOC13	Professional Competencies	4	0	4	4	3
2	Thesis	19MCOC2D	Dissertation and Viva - Voce		12	12	12	
Total number of papers = L+P=3+1=4				12	12	24	24	


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 Ariakulam, Thoothukudi NH, Maharajanagar Post, Tirunelveli-627011, TamilNadu

MASTER OF PHILOSOPHY – COMMERCE (Full-Time)

Programme: M.PHIL	Subject: RESEARCH AND TEACHING METHODOLOGY
Course code:19MCOC11	Course Title: M.PHIL
Category: CORE -1	Credits: 4

Objectives:

1. To enable the students acquire knowledge on Research methods.
2. To enable the students develop understanding of Research design.
3. To enable the students apply their knowledge in carrying out research.
4. To enable the students develop skills to undertake research in select areas.

Outcome :

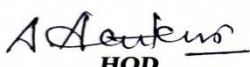
After having completed this course the candidates are able

1. To understand the basic concepts and types of Research and its methodologies.
2. To prepare a project proposal.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Research Approach - Research process-problem Identification-Research Designs-Principlessample Design – Experimental Designs.	15
2	Sampling – Probability and Non- Probability sampling – Measurement and scaling – Scaling Techniques- multidimensional scaling – data collection – primary and secondary, data Preparation – Process: Editing,Coding,Classification,Tabualation.	15
3	Data analysis – Testing of Hypothesis- Statistical Inferences- Parametric tests- t- test, Z-test, Ftest, ANOVA – one way – two way – MANOVA -paired sign test - Non-Parametric test – Chi-Square test – U test - H test - Sign test; Factor analysis - Discriminate analysis- Multiple Correlation – Multiple Regression- statistical packages- SPSS – AMOS – Lisrel, Mendeley.	15
4	Interpretation and Report Writing - Steps in writing report, Layout of research Report – Types of Reports – mechanics of writing a research report – Ethics in report writing- Plagiarism	15
5	Teaching – Objectives of Teaching, Phases of Teaching – Teaching Methods: Lecture Method, Discussion Method, Discovery Learning, Inquiry, Problem Solving Method, Project Method, Seminar – Integrating ICT in Teaching: Individualized Instruction, Ways for Effective Presentation with Power Point – Documentation – Evaluation: Formative, Summative & Continuous and Comprehensive Evaluation – Later Adolescent Psychology: Meaning, Physical, Cognitive, Emotional, Social and Moral Development – Teaching Later Adolescents.	15

Text books:

S.No	Title of the Book	Author	Edition Year	Publication
1	Research Methodology: Methods and Techniques,	C.R.Kothari, Gauravgarg	2018	New Age International Publishers
2	Business Research Methods	Donald Cooper & Pamela Schindler	9th edition.2016	TMGH
3	An introduction to Research Methodology	Garg, B.L., Karadia, R., Agarwal, F. and Agarwal	U.K., 2002	RBSA Publishers. 2015


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Programme: M.PHIL	Subject: CONTEMPORARY FUNCTIONAL MANAGEMENT
Course code:19MCOC12	Course Title: M.PHIL
Category: CORE -2	Credits: 4

- Objectives:
- To enable the students acquire overall knowledge on functional management.
 - To enable the students develop understanding of the components of functional management.
 - To enable the students apply the acquired knowledge in solving the business issues.
 - To enable the students develop skills in areas of functional management.

Outcome:

After having completed this course the candidates are able

- To identify the strategies in Human Resource Management.
- To execute all financial and management functions.

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	General Management - Modern Management response to globalization-deregulated environment – paradigm shift in management principles- diversification and advance in Information Technology	15
2	Human Resources Management (HRM) - Managing diversity-Dual Career Management-Glass Ceiling- Quality of Work Life (QWL)-Outsourcing HR Activities-Ethical issues in HRM-Dimensions of E-HRM.	15
3	Financial management- Portfolio Management- Determinants –Investors preferences-Efficient portfolios – Corporate Restructuring -Mergers and Acquisitions- Corporate governance	15
4	Marketing Management - Service Marketing- CRM- Ethics in Marketing- Social Marketing- EMarketing- Global Marketing	15
5	Information Technology in Business - Business pressure- Organizational responses -IT Support at different Organizational levels- Telecommunication and Networks – Internet, Intranet and ExtranetInformation System for the Enterprises (ERP).	15

Text books:

S.No	Title of the Book	Author	Edition Year	Publication
1	, Human Resources Management Text and Cases	K.Aswathappa	2015	MC Graw Hill pvt Ltd.2015.
2	Fundamentals of Financial Management	Bhabatosh Banerjee	2014	PHI learning pvt Ltd.2014
3	Marketing Management	TejashreePatankar	2014	International Book House.2014.
4.	Introduction to Information System	Alexis Lean, Mathews Lean	2014	Tata MC Graw Hill pvt ltd.2014.

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Programme: M.PHIL	Subject: PROFESSIONAL COMPETENCIES
Course code:19MCOC13	Course Title: M.PHIL
Category: CORE -3	Credits: 4

Objectives:

1. To enable the students acquire overall knowledge on Professional Competencies.
2. To enable the students develop understanding on Professional Competencies.
3. To enable the students apply the acquired knowledge Professional Competencies
4. To enable the students develop skills of Professional Competencies.
5. To enable the students to compete in the professional competitive examination.

Outcome:

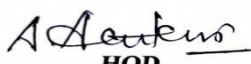
After having completed this course the candidates are able

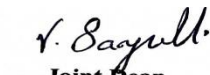
1. To appear NET/SET/JRF examinations.
2. To excel in communication processes

Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Teaching Aptitude : Teaching Aptitude- Modern methods of Teaching- Multimedia tools- Games and simulation relevant to the area of specialization	15
2	General Awareness :General Awareness - Knowledge on Contemporary economic, social and Business issues Reports on Industry and Trade analysis- People and Environment- Pollution and its impact on human life.	15
3	Communication :Communication - Nature- Characteristics- types, barriers and effective classroom communication- Time Dynamics- visuals to improve verbs – Arts of Writing – Non verbal communication – word processing stations – Teleconferencing.	15
4	Information Communication and Technology : Information Communication and Technology - Concepts, advantages, disadvantages- using web as a tool of updating knowledge- Competency to download and save, ability to follow the right link.	15
5	Reasoning Aptitude: Reasoning Aptitude - Number Series, letter series, codes; Relationships, Classification, understanding the structure of arguments- evaluating and distinguishing deductive, inductive reasoning.	15

Text books:

S.No	Title of the Book	Author	Edition Year	Publication
1	General Studies paper – II for civil services preliminary examination	Arun Sharma	2016	McGraw Hill Education (india) Private Limited, New Delhi, 2016.
2	Business Communication	P.SubbaRao	2012	Cengage learning India Pvt.Ltd.2012
3	Business Communication	MallikaNawal	2012	Cengage learning India Pvt.Ltd.2012


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Degree: BBA Subject: Business Administration Programme structure (w.e.f 2019-2022)

Sem	Part	Category	Course code	Course Title	Hours/week			Credits	Pg. No
					L	P	T		
1	I	Language	19P1TB1/19P1SB1	Tamil/Sanskrit	6		6	4	
1	II	Language	19P2EB1	English	6		6	4	
1	III	Core – 1	19UBBC11	Commercial Correspondence	6		6	4	
1	IV	Core – 2	19UBBC12	Business Statistics	6		6	4	
1	V	Allied – 1	19UBBA11	Environment of Business	4		4	3	
1	VI	Common	19UCES11	Environmental Studies	2		2	2	
			Subtotal		30		30	21	
2	I	Language	19P1TB1/19P1SB2	Tamil/Sanskrit	6		6	4	
2	II	Language	19P2EB2	English	6		6	4	
2	III	Core – 3	19UBBC21	Business Organization	6		6	4	
2	IV	Core – 4	19UBBC22	Business Mathematics	6		6	4	
2	V	Allied – II	19UBBA21	Office Management	4		4	3	
2	VI	Common	19UCVE 21	Value Based Education	2		2	2	
			Subtotal		30		30	21	
3	III	Core – 5	19UBBC31	Essentials of Management	6		6	4	3
3	III	Core – 6	19UBBC32	Essentials of Business Law	5		5	4	4
3	III	Core – 7	19UBBC33	Fundamentals of Financial Accounting	5		5	4	5
3	III	Core – 8	19UBBC34	Organizational Behaviour	5		5	4	6
3	III	Allied – III	19UBBA31	Marketing Management	3		3	3	7
3	III	Skill Based C-1	19UBBS31	Introduction to Banking	4		4	4	8
3	IV	Non Major	19UNBB3A	Introduction to Consumer Behaviour	2		2	2	9
			19UNBB3B	Banking and Finance					10
3	V	Common	19UCYP31	Yoga Theory and Practices				1	
			Subtotal		30		30	26	
4	III	Core – 9	19UBBC41	Basics of Cost Accounting	6		6	4	11
4	III	Core – 10	19UBBC42	Essentials of Industrial Law	5		5	4	12
4	III	Core – 11	19UBBC43	Production Management	5		5	4	13
4	III	Core – 12	19UBBC44	Entrepreneurial Development	5		5	4	14
4	III	Allied – IV	19UBBA41	Sales Management	3		3	3	15
4	III	Skill Based C-2	19UBBS41	Managerial Skill Development	4		4	4	16
4	IV	Non Major	19UNBB4A	Essentials of Entrepreneurship	2		2	2	17
			19UNBB4B	Services Marketing					18
4	VI	Common	19UCDE41	Computers for Digital Era				1	
4	V	Common	19UNCC41/19UNS41/19UYRC41/19URRC41/19UPESY41/19UCCC41/19USS41/19UCGC41	Extension Activity (NCC/NSS,YRC/RRC/PESSY/CCC/SSS/CGC)				1	
			Subtotal		30		30	27	
5	III	Core – 13	19UBBC51	International Business Practices	6		6	4	19
5	III	Core – 14	19UBBC52	Management Accounting	6		6	4	20
5	III	Core – 15	19UBBC53	Research Methodology	6		6	4	21
5		Core Elective	19UBBE51	Elective – 1-Consumer Behaviour	4		4	3	22
			19UBBE52	Elective – 2-Retail Management					23
			19UBBE53	Elective – 3-Marketing Research					24
5	IV	Skill Based Common	19UCPD51	Personality Development	2		2	1	
5	IV	Project	19UBBCP51	Management and Business Administration subjects for Competitive Examination and Project	6		6	6	25
			Subtotal		30		30	22	
6	III	Core – 16	19UBBC61	Case Analysis	4		4	4	26
6	III	Core – 17	19UBBC62	Strategic Management	4		4	4	27
6	III	Core – 18	19UBBC63	Financial Management	4		4	3	28
6	III	Core – 19	19UBBC64	Human Resource management	5		5	3	29
6		Core Elective	19UBBE61	Elective – 4 Financial Services	5		5	3	30
			19UBBE62	Elective – 5 Event Management					31
			19UBBE63	Elective – 6 Import and Export Procedures					32
6			19UBBP61	Project	8		8	8	33
			Subtotal		30		30	25	
			Total					142	

N. Lavanya
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TIRUNELVELI 627011

Department of Business Administration Programme outcomes:

Students can demonstrate the fundamentals of creating and managing innovation, new business development, and high-growth potential entries.

BBA graduates know and act on the economic trends, fiscal policies and also the different administrative and commerce oriented techniques to deal with the various operations and transactions in the commercial world.

BBA graduates can seek out employments in share trading, business corporations, industries, print media, and so on.

Students can work in Government sector or in IT industries.

Business Management aspirants can reach the top most designations like Directors, Managers, and CEO's and so on in Multi-National companies.

Learners can demonstrate technical competence in domestic and global business through the study of major disciplines within the fields of business.

Students are able to define, Analyze and devise solutions for structured and unstructured business problems and issues using cohesive and logical reasoning patterns for evaluating information, materials and data.

Programme specific outcome:

On the successful completion of BBA the students will venture her own business unit .

Learners can identify factors for business development.

Students may have knowledge in core concepts and practices in management.

Students are able to conceptualize a complex issue into a coherent written statement and oral presentation.

Learners are competent in the uses of technology in Business and Management in modern organizational operations.

Students can develop an understanding of business that reflect the moral responsibility of management to all relevant stakeholders and the natural environment.

Learners to be a responsible citizen and to cater the needs of societal development.


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UBB – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI 627011

SEMESTER - III

Programme: UG –BBA	Subject: Business Administration
Course code: 19UBBC31	Course Title: Essentials of Management
Category: Core – 5	Credits: 4 /6 hours

Units	Detailed Syllabus	Outcomes	Hours
1	Introduction to Management: Nature and Scope, Principles Functions and Levels – Features of Management – Administration Vs. Management –Role of Manager – Evolution of Management Thought- Organization and the environmental factors - Pioneers of Modern Management - F.W.Taylor – Hendry Fayol – Elton Mayo	Students will be familiarize students with the ethics and techniques of management Learners will help to develop an understanding of terms; facts and concepts pertaining to functions of management Students can understand the contribution of Frederick W.Taylor to the field of scientific management. Learners can know the contribution of Henry Fayol and Elton Mayo.	12hrs
2	Planning: Planning – Nature and Importance of Planning - Characteristics – Planning Process – Types of Plans – Management by Objectives (MBO) – Features of MBO – Decision Making – Nature - Types of Decision Making - importance-Process-Techniques and Tools.	Students will guide for business decisions in action of manager. Students can analyse the pros and cons of planning Students can understand the Mission, Vision and Values. Students know the types of Planning and common planning tools.	12hrs
3	Organizing: Organising- Meaning –Principles of Organising- Organising process –Importance - Departmentation - Types –Advantages and disadvantages - Factors Determining Departmentation.	1. Students will understand the barriers for individual decision- making and common styles of decision-making. 2. Learners can identify the important factors for consideration in organizational design. Students know the current trends in organizational and job design.	12hrs
4	Co-Ordination: Co-ordination - Importance – types- features-Process – coordinating functions-techniques-Authority and Responsibility - Concepts – Delegation of Authority – Meaning and features-factors to determine- Centralization Vs. Decentralization- Span of Control.	Learners know the authority and responsibility through organizational structure. 2. Students know the concept of Centralization Vs. Decentralization form of organization. 3. Students know the concepts of Span of control.	12hrs
5	Directing and controlling: Directing – Definition – Nature- Characteristics Importance – Elements-Principles and Techniques Controlling – Characteristics of Controlling - Steps In Controlling – Essentials & Techniques	1. Students can enable to compare the actual performance with the standard view of ascertaining whether what was planned to agree with actual performance. 2.Learners acquire knowledge in authority and responsible person in the organization.	12hrs

Text Books:

S. No	Title	Author	Year of publication	Publisher
1.	Principles of Management	Natrajan, K.Ganeshan K.P	2012(7 th edition)	Himalaya Publishing House, New Delhi -110002
2.	Principles of Management	T.Ramasamy	2015(7 th edition)	Himalaya Publishing House, New Delhi -110002

Reference Books

S. No	Title	Author	Year of publication	Publisher
1.	Management	Harold Koontz, Heinz Weihrich	1988(9 th edition)	McGraw – Hill, New Delhi
2.	Principles of Management	Tripathy PC and Reddy PN	2000(5 th edition)	Tata McGraw – Hill, New Delhi
3.	Fundamentals of Management: Essential Concepts and Applications	Stephen Robbins. and David A. De Cenzo	2016(10 th edition)	Pearson Education, New Delhi- ISBN-0134240847

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UBB – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI 627011
SEMESTER III

Programme: UG –BBA	Subject: Business Administration
Course code:19UBBC32	Course Title: Business Law
Category: Core – 6	Credits:4 /5 hours

Units	Detailed Syllabus	Outcomes	Hours
1	Contracts – Offer – Acceptance - Consideration-Capacity to Contract - Sale of Goods - Agency and Partnership.	1. Students aware about legal framework to start, buy, manage and sell any type of business. 2. Students enlighten the basic principles and legal aspects of business laws. 3.Students easily identify the principles and doctrines that guide such contracts..	12hrs
2	Mistake – Misrepresentation – Coercion - Undue Influence – Fraud.	Students would be able to understand the misrepresentation of contract 2.Students can understand the concepts of coercion	12hrs
3	Legalization of Consideration- Performance Of Contract- Discharge of Contract - Quasi Contract – Remedies For Breach Of Contract.	1. Students can aware of the legalization of contract 2. Learners can get fair knowledge of Discharge of contract 3. Students know the concept to remedies for breach of contract	12hrs
4	Law of Indemnity – Guarantee – Bailment- Negotiable Instruments- Characteristics of Negotiable Instruments- Negotiation and Endorsers' Liability.	Learners will get a fair knowledge of the function and importance of negotiable instrument Students can easily identify most common forms of negotiable instruments Learners able to understand the concept of bailment, Types of negotiable instrument Maturity period of negotiable instrument.	12hrs
5	Commercial paper- Requirement for commercial paper- Parties to commercial paper- Types of Commercial paper.	Learners understand why commercial paper is an important concept in modern finance Students will familiar with historical development of commercial paper Students can easily recognize how commercial paper is viewed in economics and finance	12hrs

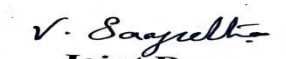
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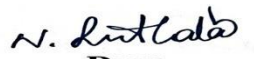
S.No	Title	Author	Year of publication	Publisher
1	Business Law	Kucchal, M.C.,	2002(7 th edition)	Sultan Chand & Sons, New Delhi New Delhi
2	Business Law: The Principles of Mercantile Law	Avatar Singh,	2011(9 th edition)	Eastern Book Company, Lucknow ISBN 9350280418

Reference Books:

S. No	Title	Author	Year of publication	Publisher
1.	Manual of Business Law	S.N Maheshwari & S.K Maheshwari	2016 (6 th edition)	Himalaya Publishing House, New Delhi
2.	Business Law	Kapoor, N. D	20019(13 th edition)	Sultan Chand & Sons, New Delhi ISBN-13: 978-9389174106


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SEMESTER III

Programme: UG- BBA	Subject: Business Administration
Course code: 19UBBC33	Course Title: Fundamentals of Financial Accounting
Category: Core – 7	Credits: 4 /5 hours

Units	Detailed Syllabus	Outcomes	Hours
1	Definition of Account – Nature and Objectives of Accounting – Branches of Accounting - uses & limitations of Accounting - Accounting Information - Accounting equations – Meaning of accounting equation, compensation of accounting, effects of transactions - Accounting Concepts and Conventions - Double Entry System Vs. Single Entry System –Books of Accounts.	1.Students develop the skill required for the preparation of financial statements and accounts of various business areas. 2.Learners acquire the accounting knowledge as applicable to business and to equip students to maintain various types of ledgers and to prepare final accounting 3.Students are able to identify the main statements and their purpose	12hrs
2	Basic Accounting Procedure – Journal, rules of debit & credit, method of journalizing, advantage, double entry system – its advantage, ledger, meaning, utility, posting entries - Practical system of book keeping – Cashbook, types of cash book, Single column, double column, entries, Trial Balance - Rectification Of Errors (Theory only) - Final Accounts.	Students will recognize commonly used financial statements, their components and how information from business transaction flows into statements Students will be able to demonstrate knowledge of preparation of financial statements. Students can prepare an Income statement and a statement of Financial position of a sole trader from a Trial Balance, including end of the year Adjustment	12hrs
3	Depreciation – Need – Causes - Methods of Depreciation (Fixed Installment Method, Diminishing Balance method, Depreciation fund method. Sinking Fund Method, Insurance policy method Straight Line Method, Written Down Value Method and Annuity Method).	Students can understand the concept of various types of depreciation Learners can identify the factors to consider when choosing a depreciation method.	12hrs
4	Capital and Revenue – Accounts of Non-trading organizations - Income and Expenditure Account – Receipts and Payments Account - Balance Sheet - Deferred Revenue Expenditure - Final Accounts - Manufacturing account- Trading account; Profit and loss account - Balance Sheet; Adjustment entries - Rectification of errors - Classification of errors- Location of errors- Suspense accounts- Effects on profit.	1. Learners can easily distinguish between gross profit and net profit, besides explain their relevant 2.Students will be able to demonstrate knowledge of preparation of receipts and payments accounts	12hrs
5	Single Entry – Definition and Defects – Net worth method – Conversion method (Simple Problems) – Double Entry Method– Definition and Defects-FIFO- LIFO method and weighted average method.	Students are able to know the concept of Inventory management Learners can compute the stock by using FIFO and LIFO method	12hrs

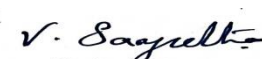
Text Books:

S. No	Title	Author	Year of publication	Publisher
1.	A Text Books of Accounting for Management	S N Maheshwari, S K Maheshwari	2018(4 th edition)	Vikas Publishing, New Delhi
2.	Financial Accounting	R.K.Arora	2018(2 nd edition)	Wiley, New delhi ISBN-10: 8126575700

Reference Books

S. No	Title	Author	Year of publication	Publisher
1.	Accounting Test and Cases	Robert Anthony & Hawkins	2017(13 th edition)	McGraw Hill Education; ISBN-10: 1259097129
2.	Accounting for Management	S.K.Bhattacharya, John Dearden	2010(13 th edition)	Vikas Publishing House Pvt Ltd, ISBN 13: 9788125905530
3.	Financial Accounting	P.C.Tulsian	2009(4 th edition)	Pearson Publication, New delhi


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SEMESTER III

Programme: UG-BBA	Subject: Business Administration
Course code: 19UBBC34	Course Title: Organizational Behaviour
Category: Core – 8	Credits:4 /5 hours

Units	Detailed Syllabus	Outcomes	Hours
1	Nature & importance – Process of OB – Concept OB – Organizational Behaviour and Management – Levels of OB analysis –Classical management – neoclassical management-- System approach to management.	Learners can get proper knowledge in management theory of basic concepts, theories and techniques in the field of human behavior. 2. Learners know the various concepts of management theories	3hrs
2	Personality and Perception: Learning - Process – Concept and theories of learning - Attitudes –Concept – process importance – Personality - Concept, nature, types and theories of personality - Perception – Concept – Nature – process of perception - Implications	Students can acknowledge the concept of personality traits and personality theories 2. Students will understand and be able to use a process for perception	3hrs
3	Motivation and Morale - Motivation Theories (Maslow's Hierarchy Theory, Herzberg Two Factor Theory, Vrooms Theory) – types of Motivation - Morale – Importance Steps to improve morale in an organization - Groups Types of groups - Characteristics and processes of groups - Group dynamics – Group cohesiveness- Decision making in groups.	1. Learners will get the knowledge about motivational theories. 2. Students know the steps to improve the morale in the organization. 3. Learners can expose the concept of formation of group, group dynamics and group cohesiveness.	3hrs
4	Leadership – Needs and importance of Leadership – Qualities of Leadership- leadership styles - Theories (Trait Theory, Behavioural Theory, Managerial Grid) – Change Management – Nature – Causes – Process – Counseling.	1. Students will identify how ethics, morals and values relate to their leadership dilemmas. 2. Students can make use of their leadership styles through various leadership theories.	3hrs
5	Organizational Culture – Levels of culture – Strategies for Sustaining Organizational Culture-structure of organization – Organizational climate - Organizational change and development- Meaning - forces of change - types of change.	Students can aware of organizational culture and its impact in the organization 2. Students can understand organizational structure ; the authority; responsibility of line and staff managers.	3hrs

Text Books

S. No	Title	Author	Year of publication	Publisher
1.	Organizational Behaviour	L.M.Prasad	2013 (1 st Edition)	Sultan Chand and Sons,New Delhi ISBN-10: 9351611469
2.	Organizational Behaviour	Fred Luthans	2011(12 th edition)	Mc Graw Hill International edition,Mumbai

Reference Books

S. No	Title	Author	Year of publication	Publisher
1.	Organization Behaviour	Robbin Stephen P.	2018 (18 th Edition)	Pearson Edition, Delhi.
2.	Organization Behaviour	Aswathappa. K	2012 (1 st Edition)	Himalaya Publishing, New Delhi.
3.	Organizational behavior	Bhatta Charyya, Didak Kumar	2014 (2 nd Edition)	Oxford University Press, New Delhi.


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SEMESTER III

Programme: UG	Subject: Business Administration
Course code:19UBBA31	Course Title: Marketing Management
Category: Allied 3	Credits: 3/3hours

Units	Detailed Syllabus	Outcomes	Hours
1	Introduction to Marketing - Functions –types of marketing-Marketing management – Objectives – Importance – Process – Functions - Marketing Information System – Management Information System–Types - Process – Functions – Decision Support system- .	Learners will get an awareness about the driving forces of channel division and value networks Students identify the various factors that influence the consumer buying behavior	12hrs
2	Market Segmentation: – Benefits – Bases for market segmentation - Niche Marketing – Market Targeting – Marketing Mix.- product targeting-Product positioning-product decision-product planning- product policy	1.Students can analyze the various basics of an market segmentation 2 . Students know the reason for requirement of the Market targeting.	12hrs
3	Product – Product Classification –New Product Development- Product Modification- Product mix and Strategies - Product diversification and Product Elimination –Product Life Cycle- Branding – functions-types-Brand Equity – Brand Loyalty – Packaging – levels of packaging-function of packaging- Objectives – Types of Packaging	1.Learners will get aware about the various steps involved in the new product development 3.Learners can get a clear idea about product life cycle from introduction in the marketing to decline stage	12hrs
4	Pricing and Marketing channels: – Meaning – Influencing factors – Objectives – Pricing methods – Process of Price Determination — Sales Promotion – Objectives – Types- Need and importance – functions-Classification – Types of Intermediaries – Physical distribution – Elements of physical distribution (logistics)	Students will able to understand different pricing policies. Students will be able to understand the concept of Sales promotion.	12hrs
5	Promotion and Emerging trends in marketing: - Advertising – Objectives - types – functions – elements – measures of effective advertising– International National Marketing- Entry mode Decisions- Emerging trends in Marketing- Concepts of E- Marketing, Directing Marketing, Digital Marketing and Green Marketing	Students can understand the advertising strategy which is to be used in the business. Students can enable them to understand the Concepts of E- Marketing . 3.Students realize the value of Green Marketing.	12hrs

Text Books

S. No	Title of the Book	Author	Year of Publication	Publication
1	Marketing Management	Dr.Radha	2013, (2 nd Edition)	Prasanna Publishers, Chennai
2	Marketing Management	V.S. Ramaswamy	2010 , (1 st edition)	MAC Millan India Ltd, Delhi

Reference Books

S. No	Title of the Book	Author	Year of Publication	Publication
1	Marketing Management Concept & Cases	Sherlekar.S. A	2013 , (1 st edition)	Himalaya Publishing House, New Delhi
2	Global Marketing Management	Keegan, Warren. J	2005 , (7 th Edition)	Pearson Education, New Delhi
3	Marketing Management	Gupta R.C& Jain	2009 , (1 st edition)	Alfa Publication, New Delhi


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SEMESTER III

Programme: UG- BBA	Subject: Business Administration
Course code: 19UBBS31	Course Title: Introduction to Banking
Category: Skill based core -1	Credits:4/4hours

Units	Detailed Syllabus	Outcomes	Hours
1	Introduction to Banking:- Meaning, Origin, Scope – Indian Banking System- Types of Banks- Role and functions of Banks – Branches of Banking - General and Special relationship between Banker and Customer.	1. Students understand the working phase of the Indian Banking System. Learners can be aware of the theoretical and legal concepts of banking in India Students know the basics of Indian Financial Systems	4hr
2	Banker and Customer: Meaning – Definition – General and Special relationship between Banker and Customer - Types of Deposits – Pass Book – Negotiable Instrument Act – Cheque – meaning – crossing of cheques – Payment and collection of Cheque - duties and responsibilities of paying and collecting Banker.	Students can aware of basic knowledge about the functions of banking systems Students understand the banking channels and payments	4hr
3	Loans and Advances: – Principles of Sound Lending – Secured and Unsecured Advance – Forms of Advances - Modes of Charging Security – Lien – Pledge – Mortgage – Assignment – Hypothecation.	Students familiarize with the basic concept of loans and advances Learners can understand the meaning and functions of mortgage Students can be well acquainted with loans and advances	4hr
4	Electronic Banking:- Traditional Vs E-Banking – Types of E-Banking – Advantages – Constraints - Core Banking, E-Banking - New Products & Services - Factoring, Securitization, Mutual Funds, Credit Cards, Home Loans, Personal Loans, Consumer Loans - Ancillary Services - Remittances, Safe Deposit lockers etc	Students have hands on training in Banking Technology like E-Banking, Telephone banking, ATM Services etc Student can be aware of various E-financial services and its applications	4hr
5	Opening of accounts:- Various types of customers - minors - joint account holders - HUF - firms - companies - trusts - societies - Govt. and public bodies - Importance of AML - Know your Customer(KYC) guidelines-Different Deposit Products - services rendered by Banks – Non fund based facilities	Students know how to open an account and various types of account (i.e.) Saving Bank account and Current account Learners can get knowledge about banking services in India like Indian Financial system banking and insurance sector in India and recent trends in banking Students will be known about various product and services offered by bank	4hr

Text Books:

S. No	Title	Author	Year of publication	Publisher
1.	Banking Theory, Law and Practice	Gordon & Natarajan	2013 (1 st Edition)	Himalaya Publishing House, Mumbai.

Reference Books

S. No	Title	Author	Year of publication	Publisher
1.	A Text Books mercantile law (Commercial law)	P.P.S Gogna	2014(6 th Edition)	Sultan Chand & Sons, New Delhi
2.	Legal aspects of Business	Ravinder Kumar	2018(4 ^h Edition)	Ceneage learning India (P) Ltd ASIN: B079MCQXTF
3.	Business law	P.C Tulsian	2017(3 edition)	McGraw Hill Education; ISBN-10: 9789339203467

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SEMESTER III

Programme: Choose any one UG	Subject: Business Administration
Course code: 19UNBB3A	Course Title Introduction to Consumer Behaviour
Category: :- NON-MAJOR ELECTIVE – I	Credits: 2/2hours

Units	Detailed Syllabus	Outcomes	Hours
1	Consumer Behaviour:- Nature and Scope – Characteristics - Importance of Consumer Behaviour in marketing decisions – Application of Consumer Behaviour – Approaches to Consumer Behaviour – Research perspective on Consumer Behaviour – Currents trends in Consumer Behaviour.	Students learn the basic concepts of nature, scope, importance and principles of consumer behaviour Students know the emerging trends in consumer behavior	6 hrs
2	Types of Consumer:- Consumer Vs. Industrial Consumer and their Buying Behaviour – Concepts – Importance – Needs and Process of Buying behaviour - Factors Influencing Buying Behaviour – Consumer Personality Theories.	1.Learners can differentiate the industrial customer and personal customer 2.They easily identify and explain the factors influencing in consumer behavior	6 hrs
3	Determinants of Consumer Behaviour:- Basic models of consumer behavior - Consumer and cultural influence - Social class influence and consumer behavior - group influences and consumer behaviour	Students can demonstrate how consumer behaviour can be applied to marketing Students can correlate internal dynamics such as personality, perception, learning motivation and attitude to the choices consumer make	6 hrs
4	Decision making:- Consumer decision making Process - problem recognition - information search- evaluation of alternatives – evaluation of selection- Family influences - Pre- purchase and Post Purchase Behaviour.	-Learners can get the idea about various behavioural factors which influence the buying decision Student can utilize appropriate approaches in Pre-purchase and Post Purchase Behaviour.	6 hrs
5	Customer Satisfaction:- Sources of consumer dissatisfaction - Methods of Problem Solving - Consumer Protection Act 1986 – Customer perception- Perceptual process – Perception Mapping Models- Consumer imaginary.	Students can solve customers’ problems regarding dissatisfaction. Learners can be acquainted with knowledge of theoretical and legal concepts of consumer rights Students know the consumer protection act and rights of consumers Students can get the idea about how to resolve the consumer problems	6 hrs

Text Books:

S. No	Title	Author	Year of publication	Publisher
1.	Consumer Behaviour	Agarwal R.K &Varma	2014(1 st edition)	SBPD Publishers, New Delhi
2.	Consumer Behaviour and Marketing	J Paul Peter, Jerry .Olson	2010(4 th edition)	Irwin Professional Publishing; New Delhi

Reference Books

S. No	Title	Author	Year of publication	Publisher
1.	Consumer Behaviour	Schiffman.G.Leon	2010(10 th edition)	Pearson (Global Edition)
2.	Marketing Management	Philip Kotler and K L Keller	2017(15 th edition)	Pearson (Global Edition) ISBN-10: 9789332587403



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SEMESTER III

Programme: Choose any one UG	Subject: Business Administration
Course code: 19UNBB3B	Course Title: Banking and Finance
Category: NON-MAJOR ELECTIVE – II	Credits:2/2hours

Units	Detailed Syllabus	Outcomes	Hours
1	Introduction to Banking: Meaning, Origin, Scope – Indian Banking System- Types of Banks- Role and functions of Banks – Branches of Banking - General and Special relationship between Banker and Customer.	Students can be familiarized the working phase of the Indian Banking System. Learners can know theoretical and legal concepts of banking in India	4hr
2	Banker and Customer : Meaning – Definition – General and Special relationship between Banker and Customer - Types of Deposits –Pass Book	1.Studentswill get perceptive towards the relationship of banker and customer 2.Learners get knowledge about the functions of banking systems	4hr
3	Negotiable Instrument Act : Cheque – meaning - crossing of cheques - Payment and collection of Cheque - duties and responsibilities of paying and collecting Banker.	Students can recognize banking channels and payments Learners get knowledge of payment and collection of cheque	4hr
4	Loans and Advances: – Principles of Sound Lending – Secured and Unsecured Advance – Forms of Advances - Modes of Charging Security – Lien – Pledge – Mortgage – Assignment – Hypothecation.	Familiarize the students with the basic concept of loans and advances Students can familiar with the various e- financial services and its applications 3.Students can get the perceptive towards meaning and functions of mortgage	4hr
5	Electronic Banking: Traditional Vs E-Banking – Types of E-Banking – Advantages – Constraints - Core Banking, E-Banking Facts – Security measures	Students have hands on training in Banking Technology like E-Banking, Telephone banking, ATM Services etc Learners can promote and understand the basic concepts of banking	4hr

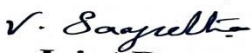
Text Books:

S. No	Title	Author	Year of publication	Publisher
1.	Banking Theory, Law and Practice	Gordon &Natarajan	2013 (1 st edition)	HPH

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S. No	Title	Author	Year of publication	Publisher
1.	A Text Books mercantile law (Commerical law)	P.P.S Gogna	2014(6 th edition)	Sultan Chand & Sons, New Delhi
2.	Legal aspects of Business	Ravinder Kumar	2013(4 th edition)	Ceneage learning India (P) Ltd
3.	Business law	P.C Tulsian	2013(3rd edition)	Tata McGraw Hill ed (p) Ltd


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SEMESTER IV

Programme: UG- BBA	Subject: Business Administration
Course code: 19UBBC41	Course Title: Basic of Cost Accounting
Category: Core 9	Credits:4/6hours

Units	Detailed Syllabus	Outcomes	Hours
1	Nature and Scope of Cost Accounting – Cost Analysis– Concept and Classification of Cost – Elements and Methods of Cost –Relationship of Cost Accounting and Financial Accounting – Preparation of Cost Sheet – Prime cost- Work cost and profit centers.	The primary objective of the course is to be familiarize the students with the basic cost allocation and control of various costs and methods of costing. Learners can apply the costing techniques in different practical situations. Students will get the basic cost allocation, control of various costs and methods of costing.. Student will be gained information about the objectives, functions of cost accounting.	12 hrs
2	Materials – Issues of material – EOQ - Levels of Stock – Receipts and Issues of materials – material of Purchase control - Levels, Aspects, Need and Essentials of Material control – Inventory Control - Re-order Levels – Minimum, Maximum, and Average Stock Levels - ABC Analysis - Stores Ledger – FIFO, LIFO, Simple Average and Weighted Average.	Learners can get a proper knowledge in inventory decisions Students can aware how to develop total cost models for specific inventory models Learners can know about how to order quantity and reorder point decisions when demand by using probability	12 hrs
3	Labour – Time-Keeping and Time-Booking – Methods of Remuneration and Incentive Schemes – Overtime and Idle time – Labour Turnover – Causes, Types and Measurement.	1.Learners can inquire the meaning of labour costing, its meaning and definitions 2.They can analyze the causes of labour turnover	12 hrs
4	Overheads – Collection, Classification, Allocation, Apportionment and Absorption – Recovery Rates – Over and Under Absorption -Machine Hour Rate – Job Costing – Contract Costing.	Students can apply the computation of overhead allocation and apportionment Learners can understand the concept of over and under absorption	12 hrs
5	Operating Costing – Process Costing: Normal Loss, Abnormal Loss and Abnormal Gains (excluding Equivalent Production and Inter process) - Process Costing (Including Inter process profit and Reserve) - Reconciliation of Cost and Financial Accounts.	Students understand the meaning and salient features of operating or service marketing Students can ascertain the cost per unit of service costing Learners are able to identify the cost data with respect to operating costing Students can compute cost relating to different types of industries using operating costing- normal costing, abnormal costing	12 hrs

Text Books:

S. No	Title	Author	Year of publication	Publisher
1.	Cost Accounting – Theory and Problems	Maheshwari, S. N. and S. N. Mittal	2015(2 nd edition)	ShriMahavir Book Depott, New Delhi ISBN-10: 9381580235
2.	Cost Accounting	Pillai, R.S.N.&Bagavathi	2010(7 th edition)	S.Chand&Compnay ISBN-10: 8121904935

Reference Books

S. No	Title	Author	Year of publication	Publisher
1.	Cost Accounting Principles & Practice	K.L.Narang, S.P.Jain	2013(8 th edition)	Kalyani Publishers.New Delhi
2.	Cost Accounting	V.Radha	2013(2 nd Edition)	S.Chand&Compnay,New Delhi
3.	Cost Accounting	Nigam, B.M.Lall	2000(1 st edition)	Prentice Hall India Learning Private Limited; New title edition ISBN-10: 8120317238


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SEMESTER IV

Programme: UG –BBA	Subject: Business Administration
Course code:19UBBC42	Course Title: Essentials of Industrial Law
Category: Core – 10	Credits:4/5hours

Units	Detailed Syllabus	Outcomes	Hours
1	Factories Act, 1948- The laws relating to factories establishment- Mines Act- Plantation Act - Workmen Compensation Act,1923-	Students can understanding of various legislations relating to business Learners acquire knowledge on the legal aspects in the industrial. Students get important legal provisions governing the industrial.	12hrs
2	Payment of Wages Act 1936 – Law of minimum wages – Payment of Bonus -The Maternity Benefit Act, 1961- Maternity relief.	Students learn the minimum wages act of government. Learners can know the concept of Maternity benefit.	12hrs
3	Employee’s Provident Fund and Miscellaneous Provisions Act, 1952 – Employee’s State Insurance Act, 1948 – Contribution of benefits- Disputes and claims	1.Students appreciative with interest cases towards labor laws related to ESI and PF	12hrs
4	The Industrial Disputes Act, 1947 - The payment of Gratuity Act, 1972- Insurance coverage.	Students can learn the laws about employees and importance of industrial relations. Students understand the employees contributions and participations in solving any industrial disputes. Students learns about payment of Gratuity.	12hrs
5	Trade Unions Act, 1926 -The Industrial Employment (Standing Order) Act, 1946 – Working and implications for management- Union – Workmen.	Students apply labor rights to create awareness about labour rights Learners can identify the labors problems and they able to resolve the problem by using trade union.	12hrs

Text Books:

S. No	Title	Author	Year of publication	Publisher
1	Business Law	Kucchal, M.C.,	2018(7 th edition)	S Chand Publishing; Seventh
2	The Principles of Mercantile Law	Avtar Singh	2012(1 st edition)	Eastern Book Company, Lucknow ISBN-10: 9350280418

Reference Books:

S. No	Title	Author	Year of publication	Publisher
1	Business Law	Maheshwari & Maheshwari	2000(1 st Edition)	HIMALAYA PUB.HOUSE-NEW DELHI ISBN-10: 935142559
2	Business Law	Kapoor, N. D	2018(2 nd Edition)	Sultan Chand & Sons, New Delhi ISBN-10: 9387907732

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SEMESTER IV

Programme: UG	Subject: Business Administration
Course code:19UBBC43	Course Title: Production Management
Category: Core 11	Credits:4/5hours

Units	Detailed Syllabus	Outcomes	Hours
1	Basics of Production Management:- Definition – Objectives - Scope- Functions of Production Management – Production systems – Job order- Intermittent and Continuous Flow Line Production – Assembly line production – Automation.	1.Learners can anticipate issues in production and operations process that they may face during their careers 2.Students expand their knowledge of operations management principles and practices.	12hrs
2	Plant location and Layout:- Factors Affecting Plant Location – Multi plant Location Decision- Plant Layout – Principles, Methods Of Laying Out - Types Of Layout - Product – Process And Combination Layout .	1.Students learn the concepts of various factors affecting to select the plant locations 2.Learners can apply and identify plant layout and plant design and its features	12hrs
3	Plant Maintenance:- Organization for Maintenance – Economics of maintenance – Types Of Maintenance – Scheduled Maintenance, Break down Maintenance, Preventive Maintenance, Merits And Demerits – Safety Engineering – Good House Keeping.	Students’ operations management concepts and their influence on business decisions regarding maintenance of machinery Students know the production concepts and operations Students can know the concept of maintenance of machinery and safety Engineering	12hrs
4	Purchase Function:- Purchasing research – Purchase function– Purchasing policies and procedures- Legal aspects of purchasing – Tax consideration in purchasing, selections and sources of supply and make or buy decisions .	.Learners understand the Purchasing policies and procedures. Students apply the concepts of Tax consideration in purchasing,	12hrs
5	Work study:- Method Study And Work Measurement- Time and Motion Study Flow Process Chart – Two Handed Process Chart – Micro motion Study – Time Study Procedure And Techniques – Application of Work Study Techniques.	Students understand the concept of time study and motion study Students can identify the production problems Students use to develop creative ideas about minimum time required to do a job	12hrs

Text Books

S.No	Title of the Book	Author	Year of publication	Publication
1	Production and Operations Management	Goel.B.S	2011(3 rd Edition,)	PragatiPrakashan, Meerut-250001
2	Modern Production/ Operation Management	Buffa. Elwood.S, Rakesh.K Sarin,	1987(8 th Edition)	Wiley Sons, New Delhi ISBN-10: 9971511630

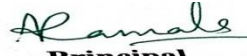
Reference Books:

S.No	Title of the Book	Author	Year of publication	Publication
1	Industrial Engineering and Management	O.P.Kanna	2018(1 st edition,)	Dhanpat Rai Publications ISBN-10: 818992835X
2.	Industrial Engineering and Production Management	Martand telsang	2006 (2 nd edition)	Sultan Chand Publishers,New Delhi ISBN-13: 978-8121917735


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UBB – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI 627011
SEMESTER IV

Programme: UG	Subject: Business Administration
Course code:19UBBC44	Course Title: Entrepreneurial Development
Category: Core – 12	Credits:4/5hours

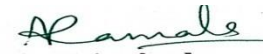
Units	Detailed Syllabus	Outcomes	Hours
1	Basics of Entrepreneurship:- Meaning - Importance- Types – Functions - Role of Entrepreneur in economic development – Qualities of an entrepreneur – Entrepreneurship as a career – Process of Entrepreneurial Development- Intrapreneurship- Concept and Process. Women Entrepreneurship in India – Problems of Women Entrepreneur.	Students able to differentiate the concepts of Entrepreneur and Intrapreneur Students go to insights of entrepreneur and entrepreneurship Students acquire knowledge in the present status of Women Entrepreneurship in India.	12hrs
2	Business start ups:- Product Selection – Forms of Ownership – Plant location – Land , Building , Water and Power - Raw Materials – Man Power – Other Infrastructural facilities – Licensing , Registration and Local Byelaws- Business Plan.	Students show interest and practiced business plan from the point view of entrepreneur Students can formulate and develop business projects.	12hrs
3	Institutional arrangement:- (for Entrepreneurship Development) - DIC, ITCOT, SIDCO, NSIC, SISI, TIIC,SIDBI, KVIC, Commercial Banks- Cooperative Banks- Micro Finance Incentives to Small Scale Industries - Sickness in Small Scale Industries And Their Remedial Measures.	Students use their skills in learning institutional support to new venture Students acquire requisite knowledge about small scale industry	12hrs
4	Project appraisal:- Meaning and Importance-Project identification - Contents of project report – Detailed Project Report – Introduction to Project and Industry till Project evaluation - Formulation of the project report	Students get awareness about business opportunity identification and Preliminary project report(PPR) Learners know the factors responsible for the growth of businessman.	12hrs
5	Project report:- Definition – Aspects – Limitation- Types of Feasibility Study- Market Feasibility- Market appraisal Vs Market feasibility - Technical feasibility- Financial feasibility- Economic feasibility	Students acquired knowledge of women entrepreneurship and problem occurred in women entrepreneurship Students get acquainted with the planning process in business and familiarized with the function and techniques of project management.	12hrs

Text Books

S. No	Title of the Book	Author	Year of publication	Publication
1	Entrepreneurial Development	Gordon. E Natarajan. K	2014(3 rd edition)	Himalaya Publishing House, New Delhi
2	Entrepreneurial Development	Dr. V. Radha	2013(1 st edition)	Prasana Publishing, Chennai

Reference Books

S.No	Title of the Book	Author	Year of publication	Publication
1	The Dynamics of Entrepreneurial Development and Management	Desai, Vasant	2011 (6 th edition)	Himalaya Publishing House; Sixth edition (2011) ISBN-10: 9350244543
2	Entrepreneurial Development	Dr.Khanka	1999(1 st edition)	Sultan Chand & Sons, New Delhi
3	Entrepreneurial Development	C.B.Gupta	2013(1 st edition)	Sultan Chand & Sons, New Delhi

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SEMESTER IV

Programme: UG- BBA	Subject: Business Administration
Course code: 19UBBA41	Course Title- Sales Management
Category: Allied 4	Credits:3/3hours

Units	Detailed Syllabus	Outcomes	Hours
1	Sales management:- Definition - Roles and techniques Sales decisions - Factors affecting sales decision – Sales force decision- Sales Territory -Tele Marketing – Difference between Telesales and Telemarketing – Advantages and Disadvantages of telemarketing	Students get aware of concepts of media decisions Students make use of sales promotion and brand equity in their business activity Students understand the various factors involved in sales decisions 4. Learners know about online marketing and Tele marketing	12 hrs
2	Essentials of Sales:- Knowledge of Industry and Company-Knowledge of Products Knowledge of Customer – Study of buying motives - Buying Motives – Various types of Buying motives – Primary and Secondary, Product and patronage, Rational and Emotional of Buying Motive.	Students learn the tools and techniques necessary to effectively manage the sales function- organization – sales individual Students learn the concepts of advanced skills in the areas of interpersonal communication, motivational techniques in the field of sales management	12 hrs
3	Sales Forecasting:- Importance - Methods of sales forecasting- Uses - Advantages and Disadvantages of Sales forecasting – Purpose of Sales forecasting - Sales Quota – Important – Types of Sales Quota.	Students can be aware of about the forecasting techniques Students enable them to analyse sales forecasting and its Methods	12 hrs
4	Sales presentations :- Sales Aids- Use of Technology in sales- market survey- Importance of market survey to salesman and producer- Physical Distribution - Nature and scope of physical distribution, order processing, distribution strategies warehousing and transportation – types and selection	Learners know the sales presentation and the market survey of salesman Students enable them to understand the roles and techniques of sales management Students get knowledge in advertising copy decisions	12 hrs
5	Salesmanship:- Nature - scope & Importance; Origin and Development of Salesmanship –Competitive Salesmanship – Creative Salesmanship - Functions of Salesman – Importance - Duties and Responsibilities of salesman – Qualities of a successful salesman - Physical traits, Mental traits, Social traits and character traits	Students will provide the various duties and responsibilities of salesman 2. Students get to know the basic understanding of the processes and skills necessary to be successful in personal selling and insights about recent trends in sales management concept	12 hrs

Text Books:

S. No	Title	Author	Year of publication	Publisher
1.	sales and distribution Management	Krishna.K.Havaladar	2017 (Third edition)	McGraw Hill Education; ISBN-10: 9352607732
2.	Salesmanship	Agarwal, R.C	2001	LakshmiNaranAgarwal Publications

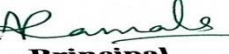
Reference Books

S. No	Title	Author	Year of publication	Publisher
1.	Sales Management Text and cases	P.K.Gosh	2010(1 st edition)	Himalaya publishing house
2.	sales and distribution Management	Tapan K.Panda,Sunil	2012(2 nd edition)	Oxford university press ,India


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SEMESTER IV

Programme: UG- BBA	Subject: Business Administration
Course code: 19UBBS41	Course Title:– Managerial Skill Development
Category: SKILL BASED Core – 2	Credits: 4/4hours

Units	Detailed Syllabus	Outcomes	Hours
1	Managerial skills – Technical, Human relations, Conceptual skills, – Managing environment – Humans and Non-Human factors – Applicative domains of Managerial skills.	1.Students can familiarize with the basic conceptual skills and applicative domains of managerial skills 2.Students understand the concept of managerial skills	12hrs
2	Verbal Behaviour - Non-verbal behaviour – Body language of Kinesics behaviour – Touching Behaviour – Physical characteristics- Psychological Characteristics – Sociological Characteristics paralanguage and proximics.	1.Students can observe and apply different communication skills in day to day life 2.Students learn the basic concepts of business communication such as formal communications and informal communication	12hrs
3	Expressions and Emotions – Managing emotions – Types – Face and expressions of emotions- Emotional intelligence – Public relations – Objectives of Public relations- functions of Public relation – Advantages and disadvantages of Public relation – Internal and External Public relations – Use of mass media for PR.	Students understand the knowledge and concept of emotions and expressions Students know the concept of public relations	12hrs
4	Stress Management: Stress – Types – Stressors – Coping strategies or techniques – Role conflict – Types of Conflict Conflict management styles –Conflict Management Techniques–Conflict Management Strategies-Role play Johari window – Transaction analysis (TA).	1.Learners know the various ways to resolve the conflict 2.Students know the concepts of various ego states in transactional analysis 3.Students can improves the skill of conflict management 4.Students identify strategies for identifying and managing stress	12hrs
5	Speeches and Presentation – Finding out about the environment - Preparing the Text – Composition of presentation – Speaker’s appearance and Personality – Profile of a good speaker.	1.Students enhance the students ability to read, write, listen and speak effectively 2 . Learners practice them for good Speeches and Presentation. 3.Students can improves various skills of students such as linguistic, non- linguistic etc	12hrs

Text Books:

S. No	Title	Author	Year of publication	Publisher
1.	Managerial skill development	P.Varshney,A.Dutta	(1ST edition) 2012	Alfa Publications; Language: English ISBN-10: 9381465266

Reference Books

S. No	Title	Author	Year of publication	Publisher
1.	Developing Management skills	Kim S. Cameron	2017(8 th edition)	Pearson Publishing company
2.	Basic Managerial skills for all	Mcgrath	2011(9 th edition)	Prentice Hall India Learning Private Limited; ASIN: 812034314X



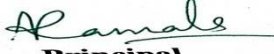
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SEMESTER IV

Programme : Choose any one UG	Subject: Business Administration
Course code: 19UNBB4A	Course Title – Essentials of Entrepreneurship.
Category :- NON-MAJOR ELECTIVE-I	Credits: 2/2hours

Units	Detailed Syllabus	Outcomes	Hours
1	Concept of entrepreneurship - classification of entrepreneurs – Socio-Economic impact of entrepreneurship - Nature and importance of entrepreneurs, Entrepreneurs Vs Professional managers - Entrepreneurship and Economic Growth – Qualities of an Entrepreneur.	Students can understand the concepts of entrepreneurship development Students can acquire requisite knowledge and skills to becoming successful entrepreneurs Students go to insights of entrepreneur and entrepreneurship	6 hrs
2	Characteristics of entrepreneur- barriers to entrepreneurship entrepreneurial functions - entrepreneurial process Entrepreneurial development training – importance of training objectives of training methods of training - benefits of training process - Identification of opportunities – Steps in setting up of a Business – Setting up a small scale unit.	Students can aware of EDPs Learners know the factors responsible for the growth of businessman. Students can acquire knowledge in the present status of EDPs in India.	6 hrs
3	Institutional arrangement for Entrepreneurship Development – DIC, ITCOT, SIDCO, NSIC, KVIC, SISI, TIIC, SIDBI, Commercial Banks – Incentives to Small Scale Industries.	Students used their skills in learning institutional support to new venture Students acquire requisite knowledge about small scale industry	6 hrs
4	Project report – Importance - Project Identification – Contents of Project report –preparation of project report – Project Appraisal -preliminary project report – Market feasibility – Technical feasibility – Financial feasibility – Economic feasibility.	Students get awareness about business opportunity identification and Preliminary project report(PPR) Students can be showed or can show interest and practiced business plan from the point view of entrepreneur Learners get acquainted with the planning process in business and familiarized with the function and techniques of project management.	6 hrs
5	Women Entrepreneurship – How to start a Business - Features of Women Entrepreneur – Problems of Women Entrepreneur – recent development of women entrepreneur in Global Scenario- Sickness in Small Scale Industries and their remedial measures.	Students acquired knowledge of women entrepreneurship and problem occurred in women entrepreneurship Students acquired knowledge of recent trends of women entrepreneurship	6 hrs

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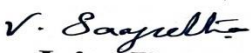
S. No	Title	Author	Year of publication	Publisher
1.	The dynamics of Entrepreneurial Development and Management	Vasant, Decsai	2011(6 th edition)	Himalaya Publishing House, New Delhi
2.	Entrepreneurship Development	Arun Mittal & S.L. Gupta	2011(6 th edition)	International Book House Pvt. Ltd. (2011) ISBN-10: 938133515X

Reference Books

S. No	Title	Author	Year of publication	Publisher
1.	Entrepreneurship Development	Monicaloss	2015(2 nd edition)	Global Academic Publisher, ISBN:978938695579
2.	Entrepreneurial Development	Dr.Khanka	1999(1 st edition)	Sultan Chand & Sons, New Delhi
3.	A practical guide to industrial entrepreneurs	Srivastava S.B.	1981(1 st Edition)	Sultan Chand & Sons, New Delhi



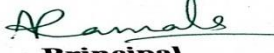
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UBB – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI 627011
SEMESTER IV

Programme: Choose any one UG	Subject: Business Administration
Course code: 19UNBB4B	Course Title – Services Marketing
Category::– NON-MAJOR ELECTIVE-II	Credits: 2/2hours

Units	Detailed Syllabus	Outcomes	Hours
1	Service marketing – Meaning and Nature of Service – Differentiating goods from services- Importance of service marketing	To enable the various concepts of service marketing. 2.Students know the importance of service marketing	6 hrs
2	Importance of service sectors – Classification of services – Marketing segmentation and positioning of services	Students will be able to provide a theoretical and practical basis for assessing service performance using company examples Students will be able to segment the Market	6 hrs
3	Services Design and Development: Creating new service – Identifying and classifying supplementary services- Service blue printing.	1. Students will be able to illustrate service blueprinting, the integration of new technology 2.Students can understand the strategies for managing service design	6 hrs
4	Pricing of services – Objectives and foundations for setting prices – Value based pricing.	Learners can identifying critical issues in services design including the nature of service products & markets, building the service model, and creating customer value Students will be able to setting the prices to the product	6 hrs
5	Distributing services- Options for Service delivery – Measuring Service Quality – The GAP Model – Customer Feedback and Service recovery.	Learners will be able to describe and utilize key service framework of service sectors Learners will be able to describe and utilize key services frameworks and concepts including the Gaps model, customer stratifications, loyalty, and customer lifetime value.	6 hrs

Text Books:

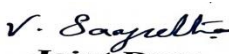
S. No	Title	Author	Year of publication	Publisher
1	Services Marketing : Text & Cases	Rajendra Nargundkar	2008(3 rd edition)	Tata McGraw – Hill Publishing Company, New Delhi ISBN-10: 0070616310

Reference Books

S.No	Title	Author	Year of publication	Publisher
1	Services Marketing	Lovelock, chatterjee	2011(7 th edition)	Pearson education ,India ISBN-9788131759394
2	Services Marketing	R. Srinivasan	2014(4 th edition)	Prentice Hall of India Private Limited, New Delhi



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UBB – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI 627011
SEMESTER V

Programme: UG	Subject: Business Administration
Course code:19UBBC51	Course Title: International Business Practices
Category: CORE 13	Credits:4/5hours

Units	Detailed Syllabus	Outcomes	Hours
1	History of International Business – Reasons for foreign entry – Patterns of International business – Types of FDI-Multinational corporation – market imperfection approach- Approaches on firm based and location specific advantages- Environment factors- Economic, Financial, Political, Legal, Cultural , Technological	Students can identify the role and impact of political, economical, social and cultural variables in international business. Students get awareness of the different thinking and viewpoints of businesses. Students can ability to apply concepts, principles and theories to simple business situation.	12hrs
2	International Business strategy- Internationalization- Management philosophies- Porter's model- Prahalad and Doz's model- International marketing strategy – Introduction to Product, Price, (INCOTERMS), Distribution, Promotion in international context	Learners can basic and broad knowledge in international business environment, strategies and management. Students can develop and present an international marketing plan, and evaluate sales strategies that support an organization's integrative trade initiatives.	12hrs
3	Technology and MNC- Technological interdependence- Strategy and innovation – Technology accumulation- Home or overseas R&D Organizational issues- Technological performance – Introduction to international finance – Exchange rate, Changes, forecasting, risk- International cash management, taxation	Students can manage the implementation and evaluation of technology accumulation Students will understand the ethical implication of business decision making and recognize ethical dilemmas.	12hrs
4	International operations strategy- Procurement- Subcontracting- Plant location decision- Plant design and interplant relationships- Staffing policies- Globalization and HRM – International labor strategy – New directions in Organizational structures- Performance evaluation	Students get awareness of the global business environment and its impacts on businesses. Students would be familiarized with global business environment, global strategic management practices and get acquainted with functional domain practices.	12hrs
5	International acquisition – Cultural, legal, political dimensions- Conventional perspective of acquisition process- alternative perspective- Acquisitions and business strategy- Successful integration- Problems in acquisition integration- Approaches to integration – Future of multinational – International Co- operation- Determinants of competition – International managers for millennium	Students can focus on how to manage cultural interdependence, with a consideration of issues of corporate social responsibility, ethics, and sustainability. Learners know the integrate concept in international business concepts with functioning of global trade.	12hrs

Text Books

S. No	Title of the Book	Author	Year of Publication	Publication
1	International Business	K.Asathappa	2007(3 rd edition)	McGraw Hil, INew Delhi
2	International Business	J.Michael Geringer	2020(1 st edition)	McGraw Hil, INew Delhi ISBN-10: 9390113377

Reference Books

S. No	Title of the Book	Author	Year of Publication	Publication
1	International Business	Francis Cherunilam	2016(1 st edition)	Himalaya Publishing House,New Delhi
2	International Business Strategy	A Nag	2010(2 nd edition)	Vikas Publishing House Pvt. Ltd.


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SEMESTER V

Programme: UG	Subject: Business Administration
Course code:19UBBC52	Course Title: Management Accounting
Category: CORE 14	Credits:4/5hours

Units	Detailed Syllabus	Outcomes	Hours
1	Introduction:- Definition – Objectives – Merits and Limitations – Financial Statement Analysis – meaning - process- Techniques - Comparative Statements – Common Size Statements – Ratio Analysis – Steps in Ratio analysis – Classification of Ratios	Students can evaluate complex ideas and tolerate ambiguity in managerial and organizational problem-solving. To enable the students nature and importance of Management Accounting.	12hrs
2	Fund Flow Statement :- Concepts of Funds – Importance – Preparation of Fund flow Statement – Limitations - Cash Flow Analysis – Meaning and Importance - Advantages – Limitations- Uses and Construction – Fund Flow Statement Vs Cash Flow Analysis	Students can critically analyze and provide recommendations to improve the operations of organizations through the application of management accounting techniques. Studentsable to utilize the management tools and techniques to take appropriate financial decisions.	12hrs
3	Marginal Costing :- Objectives and Limitations – Marginal Costing Vs Absorption Costing - Cost Volume Profit (CVP) Analysis – Break Even Analysis – Merits and Demerits – BEP – P/V ratio - Margin of Safety.	Students can analyze the break-even point data for a company that wants to adjust its sales mix. Learners know how cash flow factors can be used to improve or evaluate a business.	12hrs
4	Budget and Budgetary Control :- Characteristics and Limitations – forecast Vs budget-objectives of budget- budgetary control-classification of budget- Preparation of Sales, Production, Raw material Cost, Cash, Master Budgets and Flexible Budgets.-ZBB	Learners can apply and analyze different types of activity- based management tools through the preparation of estimates. Learners able to identify situations that require capital budgeting decision making.	12hrs
5	Working Capital:- Types – Factors Determining Working Capital - Estimate of Working Capital Requirements – Standard Costing – computation of variance- standard cost an estimated cost- Material and Labour Variance only.	1. Students understand the nature and scope of management accounting gain knowledge in the preparation of financial statement analysis, marginal costing, budget, working capital and standard costing. 2 . Learners can identify the roles of finance and accounting in a business. 3. Students know target profit analysis and use it to make sales volume calculations.	12hrs

(Marks: Theory 60% and Problems 40%)

Text Books:

S. No	Title of the Book	Author	Year of Publication	Publication
1	Management Accounting (Theory, Problems, Solution)	Ramachandran. R	2009(1 st edition)	Sri Ram Publication, Trichy
2	Management Accounting	R.S.N.Pillai, & Bagavathi	2010(1 st edition)	S.Chand& Company Ltd., New Delhi

Reference Books:

S. No	Title of the Book	Author	Year of Publication	Publication
1	Management Accounting	Khan M Y & Jain PK	2017,(7 rd Edition)	Tata McGraw Hill, New Delhi
2	Management Accounting and financial control	S.N. Maheshwari	2015(15 st edition)	S. Chand& Company Ltd., New Delhi
3	Management Accounting	T.S.Reddy ,Prasad	2016(1 st edition)	Margham Publication.Chennai


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SEMESTER V

Programme: UG	Subject: Business Administration
Course code:19UBBC53	Course Title: Research Methodology
Category: CORE 15	Credits:4/4hours

Units	Detailed Syllabus	Outcomes	Hours
1	Basics of research:- Concept of research - Business research– Features – Types: Basic and applied, exploratory, descriptive – Phases of business research - Process and formulation of Research problem – Sources – Types – Research Design – types –factors.	Students can insight into the fundamentals of social science research and to acquire practical knowledge and required skills in carrying out research. Students can develop understanding on various kinds of research, objectives of doing research, research process, research design and sampling.	12hrs
2	Sampling:- Nature -Types of sampling - Merits and Demerits – Determination of Sample size - Sampling Errors – Hypothesis –Characteristics of good Hypothesis – Types.	Learners know the steps involved in sampling techniques. Students to understand the concepts of research methodology	12hrs
3	Data collection:- Types of data - Sources and Collection of data. - Primary and Secondary sources - Methods of data Collection – Questionnaire VS Schedule - Merits and Demerits - Scaling Techniques – likert’s scale – Thurston scale.	Learners gain thorough knowledge on the collection of data Students are familiarizing the scaling techniques	12hrs
4	Data Analysis:- Coding - Data entry -Analysis Interpretation of data -Tabulation – Mean – Median – Mode – Standard deviation – Tools for analysis (Percentage and Chi-square analysis only) - .	Students know how to create a quantitative coding for organizing their data. Students should be familiarized with ethical issues in educational research, including those issues arise by using quantitative and qualitative research.	12hrs
5	Report Writing:- Research Report – Concept – Layout of a research report-Types - --Significance of Report Writing– Contents of a report – Drafting of reports.	Students can identify the overall process of designing a research study from its inception to its report. Students acquire knowledge for enabling students to develop data analytics skills and meaningful interpretation to the data sets so as to solve the business research problem.	12hrs

Text Books

S. No	Title of the Book	Author	Year of Publication	Publication
1	Research Methodology: Methods and techniques	C. R. Kothari	2019(4 th edition)	New Age International Publisher,New delhi ISBN-10: 9386649225
2	Research Methodology	P. Saravanel	2018(5 th edition)	Kitab Mahal, New Delhi ISBN-10: 8122500102

Reference Books

S. No	Title of the Book	Author	Year of Publication	Publication
1	Research Methodology	Chandra Suresh	2013(1 st edition)	Narosa Publishing House, New Delhi
2	Research Methodology	R. PaneerSelvam	2013(1 st Edition)	Prentice Hall of IndiaLearning Pvt Ltd, Delhi
3	Research Methodology	Donald R.Cooper	2015(9 th edition)	Mc Graw hills Pvt Ltd., New delhi


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SEMESTER V

Programme: UG	Subject: Business Administration
Course code:19UBB E51	Course Title: Consumer Behaviour
Category: Core Elective – 1	Credits:3/4hours

Units	Detailed Syllabus	Outcomes	Hours
1	Introduction:- Definition - Nature - Scope - Need to study Consumer Behaviour - Applications Of Consumer Behaviour Knowledge - Current trends in Consumer Behaviour- Research Perspective on Consumer Behaviour.	Students understand the underlying concepts and issues in Consumer behaviour in marketing. Students can identify the major influences in consumer behaviour.	12hrs
2	Buying behavior:- Concepts - Importance – Types of Consumers - Need and Elements Involved in Buying Process - Factors Influencing Buying Process - Behavioral factors – Attitude - Personality – Perception – Motivation – Learning.	Learners know the factors influencing Buying Process. Learners can be aware of the concepts of consumer factors also play role delights.	12hrs
3	Consumer Decisions:- Types Of Consumer Decisions - Consumer Decision Making Process - Purchase processes – Pre Purchases and Post-purchase behaviour. Consumer Behaviour Models.	Students may establish the relevance of consumer behaviour theories and concepts to marketing decisions. Students can satisfaction able to analyse how consumer behaves while taking purchase decision.	12hrs
4	Consumer Satisfaction:- Objectives - Importance - Working Towards Enhancing Consumer Satisfaction - Reasons Of Consumer Dissatisfaction - Consumer Research Process.	Students can enable the students to learn the basics of customer relationship management Students understand the importance of consumer satisfaction.	12hrs
5	Consumerism:- Dealing With Consumer Complaint - Reasons For Growth Of Consumerism In India - Consumer Protection Act – Consumer Rights – Consumer Forum.	1.Students familiarize with consumer protection Act. 2.Students can recognize social and ethical implications of marketing actions on consumer behaviour.	12hrs

Text Books

S.No	Title of the Book	Author	Year of Publication	Publication
1	Consumer Behaviour Indian Persceptives	Suja.P.Nair	2015(2 nd Edition)	Himalaya Publishing House, Delhi
2	Consumer Behaviour	Agarwal. R.K &Varma. MM	2014(1 st Edition,)	SBPD Publications,UP ISBN-10: 9383697814

Reference Books

1	Consumer Behaviour& Marketing Strategy	J. Paul Peter, Jerry C. Oison	2010(4 th Edition)	Tata Mc graw Hill,New Delhi
2	Consumer Behaviour	Schiffman.G.Leon	2010(10 th edition)	Pearson (Global Edition)


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UBB – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI 627011
 SEMESTER V

Programme: UG	Subject: Business Administration
Course code: 19UBBE52	Course Title: Retail Management
Category: Core Elective – II	Credits:3/4hours

Outcome:

Units	Detailed Syllabus	Outcomes	Hours
1	Introduction:- Retailing – Importance – Functions and Characteristics – Types of Retailers – Retailing principles - Main drives of retailing – Multi channel retailing – social and economic significance of retailing – the global retail market: Issues and challenges – retail in India: challenges to retail development in India.	Students can describe retailing, the entities involved, and the impact of decisions on a retail business. Students can recognize career opportunities available in retail Businesses.	12hrs
2	Retail Market Strategy:- Retailing formats: Store based and Non-store based – Advantages and Disadvantages – building sustainable competitive advantage – growth strategies – global growth opportunities – the strategic retailing planning process	1. Students can identify and understand consumer behaviour. 2.Students know the concept of strategic planning within the retail management decision process. 3.Students can describe why it is important for retailer stores each and understand their customers.	12hrs
3	Retail Location:- Types of Location site – Factors influencing selection of Location – Selection of Location (Urban, Rural, Sub-urban) – Merits and Demerits – Information system.	Learners expose various factors influencing selection of location Learners know the opportunity in retail Sales	12hrs
4	Store Layout:- Importance – Steps for designing store layout Visual merchandising – Types of merchandise -Objectives Essentials of successful visual merchandising- Signage– Types – Characteristics of a good signage.	Students know about Retail environment stores layout. Learners can be recognized the challenges faced by multichannel retailers and how retailers must adapt.	12hrs
5	Opportunities in retail marketing:- Management and Entrepreneurial opportunities - Internet Retailing – Advantages and Disadvantages – Traditional Vs. Cyber retailing – Recent trends of retailing in global scenario.	1. Students can analyze the evolution of the retail industry. 2 .Students can analyze the characteristics of a retail trading area.	12hrs

Text Books:

S. No	Title of the Book	Author	Year of Publication	Publication
1	Retail Management	Nair Suja	2017 (1 st edition)	Himalaya Publishing House, Mumbai
2	Retail Management	Dr. L. Natarajan	2016 (1 st edition)	Margham Publications, Chennai

Reference Books:

S. No	Title of the Book	Author	Year of Publication	Publication
1	Retail Management A Strategic Approach	Berman Barry, Evans R. Joel, Chatterjee Patrali,	2018(1 st Edition)	Nada Pearson Education, Delhi
2.	Retail Management	Swarana Pradhan	2017 (1 st edition)	McGraw Hill Education; ISBN-10: 9385965042



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UBB – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI 627011
SEMESTER V

Programme: UG	Subject: Business Administration
Course code: 19UBBE53	Course Title: Marketing Research
Category: Core Elective – 3	Credits:3/4hour

Units	Detailed Syllabus	Outcomes	Hours
1	Marketing research:- Definition – Nature and Scope – Importance – kinds of marketing research – Marketing information system – Different phases of the administrative process – Difference between managers and consumers	Students will explore different approaches of marketing research. Students can understand different phases of the administrative process.	12hrs
2	Data Collection:- sources of collecting marketing information - Secondary Data – Primary Data –Observation methods – Disguised and Non disguised measuring attitudes – Multi dimensional scaling – Consumer preference.	Students can analyze both Primary and Secondary data Students can understand the Disguised and Non disguised measuring attitudes.	12hrs
3	Sampling:- Types of Sampling – Sample Selection –Type of Errors - Data Analysis – Classification, Tabulation and Interpretation of data – Report Writing	Learners know the steps involved in sampling techniques. Students can identify the overall process of designing a research study from its inception to its report.	12hrs
4	Identifying Market segments:- Process- Segmentation process – Research design for segmentation models- Cluster base segmentation – Benefit of segmentation- Segmentation and research process	Students can identify various sources of market segments. Students can develop skills in segmentation and research process	12hrs
5	Product research:- New Product Development – Process - Test Marketing – Advertising research – Advertising research decisions –Media selection - Copy Testing – Pre-testing and Post – Testing- Media research – Marketing decision support system	1. Learners know the purpose of product research 2. Students get aware of stages involved in new product development 3. Students understand the research media.	12hrs

Text Books:

S. No	Title of the Book	Author	Year of Publication	Publication
1	Marketing Research	Richa Arora, Nitin R. Mahankale	2013(1 st edition)	PHI Learning Private Limited, Delhi
2	Marketing Research	G.C. Beri	2013(3 rd edition)	Tata McGraw Hill, New Delhi

Reference Books:

S. No	Title of the Book	Author	Year of Publication	Publication
1	Marketing Research Text & Cases	Markundkar Rajendra	2012(1 st edition)	Tata McGraw Hill, New Delhi
2	Advertising and sales promotions	E. Gnanasekaran	2013(2 nd edition)	A.R. Publications, Chennai
3	Marketing Research	Nair S. Suja	2012(1 st edition)	Himalaya Publishing House, New Delhi


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UBB – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI 627011
 SEMESTER V

Programme: UG	Subject: Business Administration
Course code:19UBBCEP51	Course Title: Management and Business Administration subjects for competitive examination and Project
Category: Project	Credits: 6/6hours

Outcome:

To undergo an acquire knowledge of competitive examination
 To train in Management and Business Administration
 To promote the effective participation of a project with competitive examination.

Unit –I : Marketing Environment and Environment Scanning

Marketing Information System - Product Life Cycle - Promotion Decision - Uses of Internet as a marketing medium – Market Segmentation Product positioning- Product decision - Product mix - New issues in Marketing.

Unit – II : Organizational Behaviour

Concepts & Significance - Skills and roles in an Organization - Theories of Organizational Structure - Understanding and Managing Individual Behaviour Personality - Interpersonal and Group Dynamic – Managing Conflict - Organization Development.

Unit – III: Human Resource Management

Concepts & Perspectives in HRM – Human Resources Planning – Objectives - Process and Techniques - Job analysis – Selecting Human Resource - Job Evaluation - Wage Determination - Labour Welfare - Grievance Management.

Unit- IV: Financial Management

Nature and Scope of Financial Management – Capital budgeting decision – Risk analysis – Capital structure – Cost of capital – Long-term & Short-term financing instruments – Mergers and Acquisitions.

Unit – V: Production Management

Role & Scope of Production Management – Facility Location - Layout Planning & analysis - Production planning and control-Production process analysis - Demand forecasting for operations - Determinants of product mix – Production scheduling - Work measurement - Time and Motion study - Statistical quality control.

Reference Books

S.No	Title of the Book	Author	Year of Publication	Publication
1	Marketing Management	Dr.Radha	2013(2 nd Edition)	Prasanna Publishers, Chennai
2	Organization Behaviour	Stephen, P. Robbin	2012(2 nd Edition)	Prentice Hall
3	Human Resource Management: Text & Cases	C.B.Gupta	2012(14 th Edition)	Sultan Chand & Co. Ltd
4	Financial Management	Khan. M.Y, Jain.P.K	2015 (4 th Edition)	McGraw Hill Education (P) Ltd., New Delhi
5	Production and Operations Management	Goel.B.S	2011 (3 rd Edition)	Pragati Prakashan, Meerut-250001

Mini Project

Outcome:

To undergo an external field survey by choosing any industry (or) company (or)organization
 To train in drafting the formal report
 To promote the effective presentation of a project among the stakeholders.
 The students may choose any industry (or) company (or) organization of their choice for doing mini-project. The data may be primary or secondary sources. The students should undergo an external field survey or case study of a selected industry (or) company (or) organization by confining the specialization chosen from the available clusters.
 As like a project report, this field survey / case study report shall be prepared by starting the title as Survey/ Case study of..... company or industry or organization .
 Since it is an external study report, the students should pay utmost interest in drafting the report and it should be as like formal report.
 Field survey/ Case study chosen by the students for field investigation should be related to the course.
 Before starting of fifth semester examinations, the student should submit the report both hard and soft copy with regard to this Viva-voce shall be conducted through the Power-point presentation.
 The report should be evaluated for 50 marks and viva-voce exam shall be conducted for 50 marks. Total marks for the paper is100.
 Students should attain 40 marks in both report and viva-voce to clear the paper. If the student is unable to clear or absent for the above examination, he/she should reappear with updated report after paying the examination fees to the institution in the next semester.
 After the completion of the end of semester examinations the report and viva-voce exams will be conducted by the approved examiners.

Instruction for submission:

The volume or size of the report may be about 15 to 20 pages typed(bothsides) with font name of Times New Roman in 1.5 paragraph space.
 (Excluding Content page, Certificate, Acknowledgement, Declaration certificate, Index and Appendix)
 Students are required to submit the survey/case report in duplicate after duly signed by Principal/Director of the college and approved Faculty Guide before the semester end examination.
 Duration for the survey/case report preparation can be fixed as per the direction of the Guide. The report should have the following aspects and present the report in the order mentioned below.

Units	Detailed Syllabus	Hours
1	Introduction about the industry (or) company (or) organization - Form of Ownership - License or Registration - Organization structure - Sources of Finance.	9hrs
2	Number of employees - Recruitment process – Training – Appraisal of employees.	9hrs
3	Product / Service produced or offered – Manufacturing process – Raw materials and Equipments used - Logo – Slogan – Trade Mark	9hrs
4	Marketing of Products/Services – Channel of Distribution – Advertising – Sales promotion and sales management.	9hrs
5	Conclusion based on the overall observation of the study.	9hrs



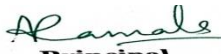
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UBB – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI 627011
SEMESTER VI

Programme: UG	Subject: Business Administration
Course code:19UBBC61	Course Title: CASE ANALYSIS
Category: CORE 16	Credits:4/4HOURS

Objectives:

To analyse the different functional areas of management.

To discuss the case in groups for identifying the problem.

Outcome:

To increase decision making capacity of the students and solving methods of the problems.

To develop leadership and communication skills of the students.

One case per week is to be discussed by the students. The cases could be from different functional areas of management.

The students would be provided with the case lets. They would discuss the case in groups. The teacher would guide and facilitate group discussions so as to impart, develop and hone the GD Skills.

Since, this subject focuses on developing GD Skills; the scheme of examination has two main components and respective sub – components and marks. The marks are to be distributed as follows

Components	External	Internal (25 Marks)			
	(3 Hours Examination)	Skill Components			Test
		Communication Skill	Leadership Skill	Inter – Personal Skill	
Marks	75	5	5	5	10
Total	75	15			10


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UBB – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI 627011
SEMESTER VI

Programme: UG	Subject: Business Administration
Course code: 19UBBC62	Course Title: - Strategic Management
Category: CORE 17	Credits:4/4hours

Units	Syllabus	Outcomes	Hours
1	Evolution:- Concept and Characteristics of strategic management- Defining strategy- Mintzberg's 5Ps of strategy – Corporate, Business and Functional Levels of strategy – Strategic Management process – Vision, Mission, Purpose, Business definition, Objectives and goals	Students get awareness about the strategic Analysis 2.Students can understand the uses of strategic management process. 3.Student can understand the Strategic management process. 4.Learner can analyze the various levels of strategy.	12hrs
2	External Environmental Analysis:- Segments of the External Environment – Scenario planning – Preparing an Environmental Threat and Opportunity Profile (ETOP)- Industrial Analysis- Porter's Five Forces Model of competition	Studentscan understand the basic concepts and principles of strategic management analyze the internal and external environment of business Learners can understand the uses of Environmental Threat and Opportunity Profile 3.Students know the external factors of environmental analysis.	12hrs
3	Strategic Alternatives:- Generic Competitive Strategies – Low cost, Differentiation, Focus, Grand Strategies- Stability, Growth (Diversification Strategies, Vertical Integration Strategies, Mergers, Acquisition &Takeover Strategies, Strategic Alliances & Collaborative partnership), Retrenchment, Outsourcing Strategies.	1.Learners can describe about the Strategic Alternatives 2. Students to understand the reason for Merger Strategies in the business	12hrs
4	Strategic Analysis and Choice:- Portfolio Analysis – BCG Growth- Share Matrix, GE Nine Cell Matrix, Shell's Directional Policy Matrix, Corporate Parenting- Role of subjective factors	Students know how the GE Nine Cell Matrix helpful for Strategic Analysis. Students to learn about the strategic alliances and their uses. Students can analyse and understand the uses of strategic Implementation. Student to make use of how implement the strategy.	12hrs
5	Strategy implementation:- Designing organizational structure and activating strategies; matching structure and activating strategy, Structural, Behavioural and Functional implementation. Concept of synergy. Strategy Evaluation- Strategic evaluation and Control, Strategic and Operational Control; techniques of evaluation and control, Role of organizational system in evaluation.	Learners can develop and prepare organizational strategies that will be effective for the current business environment. Students can devise strategic approaches to managing a business successfully in aglobal context Learners can define strategy within the context of a business and their organizational goals..	12hrs

Text Books

S.No	Title of the Book	Author	Year of Publication	Publication
1	Strategic Management; Analysis, Implementation & Control	Nag A	2003(2 nd edition)	Vikas Publishing House,Chennai
2	Strategic Management	Rao V.S.P and HarikrishnaV	2013(3 rd edition)	Pillappa publishers,Karnataka ISBN-10: 9350623161

Reference Books

1	Strategic Planning- Formulation of corporate strategy	Ramasamy V S and Namakumari S	1 st edition 2004	Macmillan I NDIA Ltd.
2	Business Policy and Strategic Management	Vip in Gupta,Kamalaand srinivasan	3 rd edition 2003	Prentice Hall of India Ltd,New Delhi
3	Strategic Management	Fred. R.David	2011(14 th edition)	Pearson Publishing house,New Delhi ISBN-10: 0132666219

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SEMESTER VI

Programme: UG	Subject: Business Administration
Course code: 19UBBC63	Course Title: - Financial Management
Category: CORE 18	Credits:4/4hours

Units	Detailed Syllabus	Outcomes	Hours
1	Introduction :- Meaning and Scope - Finance Functions – Sources of Finance - Profit Maximization and Wealth Maximization- Relationship between management accounting, cost accounting and financial accounting.	Students can develop in them decision- making skills on various financial matters Students get acquaint knowledge of various tools for the management and understanding of finance. Students to understand the functions of finance. Learners can analyze the sources of finance for the business.	12hrs
2	Cost of Capital :- Concept, Importance – Classification – Calculation of Cost of Debt, Cost of Equity and Cost of Preference Shares - Cost of Retained Earnings – Weighted Average Cost of Capital.	Students can understand about the cost of capital for the Cost business. Students know how to calculate the cost of Debt. Learners can describe about the importance of Weighted Average cost of capital.	12hrs
3	Capital Structure Planning :- Meaning and Scope – Approaches: Net Income Approach – Net Operating Income Approach – MM Approach – CAPM- Arbitrage Process – Traditional Approach – Indifference Point.	Learners can understand the Capital Structure and has to plan according to that. 2.Students can describe clearly about the various Approaches in the Capital Structure. 3.Students Know how Net Operating Income Approach involved in the Capital Structure	12hrs
4	Leverages :- Meaning and Significance – Types: Operating, Financial and Combined Leverages – EBIT and EPS Analysis, Dividend– Forms of Dividend – Factors determining dividend - Dividend Theories and Dividend Policies.	Students are able to analyze the significance of Leverages. Students know the various types of leverages and its uses. 3.Learners can identify the factor determining dividend and about the Dividend Policies	12hrs
5	Investment Decisions :- Concept and Importance – Appraisal Methods: Pay Back Method – Discounted Cash Flow Method - NPV Method, Excess Present Value Index, Internal Rate of Return, Average Rate of Return and Return on Investment, Profitability Index.	Students can analyze the Capital Budgeting and its importance Learners are enabling to understand the students how to implement the Appraisal method in Capital Budgeting. Students can identify the Profitability Index	12hrs

(Marks: Theory 60% and Problem 40%)

Text Books:

S.No	Title of the Book	Author	Year of Publication	Publication
1	Financial Management	Dr. V. Radha	2013(1 st edition)	Prasanna Publishers, Chennai
2	Financial Management	Mohamed Peer, Shazuli Ibrahim	2013(1 st edition)	Prasanna Publishers,

Reference Books:

1	Financial Management	Khan. M.Y, Jain.P.K	2015(4 th edition)	McGraw Hill Education (P) ltd., New Delhi
2	Financial Management	Prasanna Chandra	2019(7 th edition)	Tata- McGraw Hill Publisher, New Delhi
3	Financial Management	Dr. A. Murthy	2018(1 st edition)	Margham Publications, Chennai


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SEMESTER VI

Programme: UG	Subject: Business Administration
Course code: 19UBBC64	Course Title: Human Resource Management
Category: CORE 19	Credits:3/5hours

Units	Detailed Syllabus	Outcomes	Hours
1	Introduction:- Definition – Characteristics and Objectives – Principles of HRM– Importance of HRM - Functions of Personnel Department – Managerial and Operative Functions- International Human Recourse Management- HR Challenge of International Business- Green HRM- Current trends in HRM.	Students are familiarized and acquainted the students with the knowledge of Organisational culture and to enlighten the students with the HRD Practices. Learners get acquire knowledge on the recent trends in HRM. Students to know the concept of Human Resource Management.	12hrs
2	HR Planning:- Basics and needs – Factors - Steps in HR Planning (HRM Process) – Job Analysis - Benefits – Steps in Job Analysis - Job Description and Job Specification – Job Enlargement – Job Rotation – Job enrichment	Students identify the importance of Human Resource Planning. Students able to understand the difference between the Job Description and Job Specification. 3.Students get the knowledge about job Analysis	12hrs
3	Recruitment ,Selection and Training:- Types – Sources –Process - Selection– Types – Sources –Process Interviews and Tests - Placement of Personnel –Induction and Orientation Training – Objectives –Importance – Methods – On the Training Vs Off the Job Training – Pros and Cons	To understand the various steps involved in the recruitment process. Learners are able to analyse the profile and recruiting a person for the job Students are able to understand about the concept of On the training and Off the Job Training	12hrs
4	Performance Evaluation:- Importance – Methods – Benefits - Promotion- Criteria and Types – Seniority Vs Merit Promotion – Pros and Cons Transfer – Types – Separation – Golden Hand Shake- Potential Assessment- Wage Determination	Students can evaluate the Performance Evaluation of the personnel. 2.Students can understand the reasons for the transfer of the personnel. 3.Learners know the various types involved in of promotion	12hrs
5	Industrial relations:- Significance -Causes - Suggestion to improve industrial relations – Trade Union - Workers participation in Management - Collective Bargaining - Disciplinary procedure – Grievances – Forms - Steps in Grievance Handling- Whistle- blower - Labour Welfare and Social Security Measures.	Students understand the steps involved to improve the Industrial relation Students know the concept of Workers Participation in the Management Learners can get a clear knowledge about the Labour Welfare.	12hrs

Text Books:

S. No	Title of the Book	Author	Year of Publication	Publication
1	Human Resource Management: Text & Cases	C.B.Gupta	2012(14 th Edition)	Sultan Chand & Co. Ltd, New Delhi
2	Human Resource Management	K.Aswathappa	2014(7 th Edition)	McGraw Hill Education, New Delhi

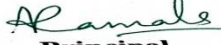
Reference Books:

1	Human Resource Management	Gary Dessler, BijuVarkkey	2012(12 th edition)	Pearson Education, Mumbai
2	Principles of Human Resource Management	T. Eugene	2013(1 st edition)	Vrinda Publication (P)Ltd, New Delhi
3	Human Resource Management	V. Radha	2013(1 st Edition)	Prasanna Publisher,Chennai


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 SEMESTER VI

Programme: UG- BBA	Subject: Business Administration
Course code: 19UBBE61	Course Title: Financial Services
Category: Core Elective – 4	Credits:3/5hours

Units	Detailed Syllabus	Outcomes	Hours
1	Financial services:- Concepts – Objectives / Functions – Characteristics – Importance – Classification and Scope of Financial Service - Financial Services Market – Problems of Financial Services Sector - Growth of Financial Services in India – Recent Development of Financial Service In Global Scenario	Learners are enable them to analyse stock movements Studentsknow the role of intermediaries in the capital market Students can get a clear knowledge about the financial services. Students can analyse the Growth of Financial Services in India.	12 hrs
2	Fund Based And Non- Fund Based Financial Services :- Leasing-concept of leasing- types – advantages and disadvantage of leasing – History and Development of leasing - Hire Purchases – Salient Features – HP Agreement – Origin and Development of HP - Functions of HP	Students are able to understand the Fund Based and Non-Fund based Financial Services. Learner can able to determine the uses of leasing. Students can identify the functions of hire purchase.	12 hrs
3	Mutual funds:- Benefits -Types of Mutual Funds – Advantages and Disadvantages of Mutual Fund - Mutual Funds Regulations – History and Recent developments of Mutual Fund .	Students know the importance and benefits of Mutual Fund. Students know the regulations in the Mutual Fund. Learners can identify the regulations of development of Mutual Fund	12 hrs
4	Factoring, Forfeiting and Venture Capital:- Salient Features – Guidelines – Functions, Strategies Involved In Financing - Venture capital-Concept, importance, the Indian scenario.	Students are able to understand and differentiate the concept of factoring and forfeiting. Learners know the significance of Venture Capital.	12 hrs
5	Merchant Banking Origin:- Services of merchant banks, progress of merchant banking in India, Problems and Scope of Merchant Banking and Credit Rating Services - Salient Features – Guidelines – Functions.	Learners can identify the Problems in the Financial Services Sector. Help them to strategies involved in financing. Learners know the role of Merchant Banking.	12 hrs

Text Books:

S.No	Title	Author	Year of publication	Publisher
1.	Financial Service	Gurusamy.S	2009(2 nd edition)	McGraw Hill Education ISBN-10: 0070153345
2.	Merchant Banking and Financial Service	Gurusamy.S	2013(4 th edition)	Tata McGraw Hill SBN-10: 818209366X

Reference Books:

S.No	Title	Author	Year of publication	Publisher
1.	Financial market and Services	Gordon and Natarajan	2018(11 th editions)	Himalaya Publishing, ISBN 9789352991488
2.	Financial Service	Dr.Radha	2011	Prasana Publishers,Chennai
3	Financial Service	R.Shunmugam	2017(2 nd edition)	Wiley publishers, New Delhi



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SEMESTER VI

Programme: UG- BBA	Subject: Business Administration
Course code: 19UBBE62	Course Title: Event Management
Category: Core Elective – 5	Credits:3/5hours

Units	Detailed Syllabus	Outcomes	Hours
1	Introduction:- Designing corporate events that meet customer’s needs – the fundamentals of corporate hospitality – Managing customer expectations – Types of corporate events – Example: Board Meeting, International and National conferences.	1.The Sharpen their vision, increase business acumen and enhance event management skills 2.Students get acquire thorough knowledge and understanding of multiple facts of team management 3.Students are able to design the corporate event in both national and international level	9hr
2	Event management companies :- In-house vs. event management companies – Corporate event packages – Staff events – Customer events -Team building – Nature of Teams – Types of Teams – Examples: Staff Tour, Management Games	Students are able to describe briefly the steps in event management including planning, executing and evaluating an event Learners know the preparation that is needed for a career as an event manager	9hr
3	Events :- Charity Events and Award Ceremonies – Setting fund raising targets and objectives – Working with volunteers and committees – Generating goodwill and media exposure – Commissioning celebrities – MCs and entertainment – Example: Award function like graduation day, college day.	Learners able to different the corporate event and charity event Students are able to working along with the volunteers and committees in event management Students know the concept of event planning and Management	9hr
4	Types of Events:- Indoor Events - Concepts - Outdoor Events, Concerts – Types of outdoor events – Risk management – Planning and logistics, Marketing and sponsorship- Media invitations - photo-calls - press releases - TV opportunities – radio interviews - Flyers - posters - invitations - website - newsletters - ezone - blogs - tweets.	Students can able to conduct the Indoor event and outdoor event Students can analyze the risk involves in various factors involved in event management 3.Learners can know various social media involved in the event management	9hr
5	Corporate hospitality :- Celebrity events- Concerts – Launches – Fashion shows – National festivals and high-profile charity events – Liaising with agents – Contract negotiations – Client briefings – Celebrity wish lists and expectations – Paparazzi and entourages	Students know the fundamental concepts of corporate hospitality Learners views 360 degree perspective on event management Help the students to understand the concepts of Contract of negotiations.	9hr

Text Books:

S.No		Author	Year of publication	Publisher
1.	Event Entertainment and Production	Mark Sonder	2010 (1 st edition)	Wiley & Sons Publishers New Delhi
2	Event Management	Wagen	2005 (1 st edition)	Pearson Publication, New Delhi

Reference Books

S.No	Title	Author	Year of Publication	Publisher
1.	Crew Resource Management	Barbara G. Kanki, Robert L. Helmreich, and Jose Anca,	2010(2 nd edition)	Academic Press, US
2.	Professional Event Coordination	Julia Rutherford Silvers	2012(2 nd edition)	Wiley Desktop Editions
3.	Sustainable Event Management	Meegan jones	2010(1 st edition)	Earth scan Publications, London


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SEMESTER VI

Programme: UG	Subject: Business Administration
Course code: 19UBBE63	Course Title: Import And Export Procedures
Category: Core Elective – 6	Credits:3/5hours

Units	Detailed Syllabus	Outcomes	Hours
1	Internal and International trade :- Difference between internal and international trade – Features of International trade – Advantages and Disadvantages of giving protection.	Students can able to analyse the factors of the International Trade. Learners get a clear knowledge the Internal and International Trade. Students are able to describe the importance of the International trade.	12hrs
2	Balance of Trade :- Meaning –Balance of Trade Vs Balance of Payments – Components of Balance of payments – Equilibrium and disequilibrium in the balance of payments – causes for disequilibrium exchange control – meaning – objectives – methods of exchange control	Students know the difference between Balance of Trade and Balance of Payment Students can analyse the factors responsible for the Balance of Payment Learners know the concept of the Disequilibrium in the balance of payments	12hrs
3	Import procedure :- Import of capital goods – EPCG Scheme – Import Under Duty exemption scheme – procedure for customs clearance – levy of customs duty - kinds of customs duty – imports by export oriented units – export processing zone	Students can able to determine the basic steps for Export. Learners can understand what is the procedure involved in export. Students know what are the documents needed for the Export	12hrs
4	Exports Procedure :- Preliminary steps in exporting – export documents- documents related to goods – certificates related to shipment – documents related to payment	Students can understand what is the procedure involved in Import. Learners know what are the documents needed for the Import Learners analyse the factors of the Export Processing Zone. Students get aware of various kinds of Customs duty.	12hrs
5	Export Promotion :- Objectives – Organizational set up – incentives – marketing assistance – import facilities for exports – major problems of India’s export sector.	Students explore the knowledge of Export promotion. Students know the Objective and Significance of Export promotion. Learners can be identified the Problems faced by the India’s Export Sector.	12hrs

Text Books

S.No	Title of the Book	Author	Year of Publication	Publication
1	International Trade and Export Management	Francis Cherunilam	2006(1 st edition)	Himalaya Publishing House, New Delhi

Reference Books

S.No	Title of the Book	Author	Year of Publication	Publication
1	Export Management	D.K.Jhurara	2005(1 st edition)	Galgotia Restication Pvt.Ltd, New Delhi
2	Import Export Procedure and documentations	Dr.Swapna Pillai	2020(1 st edition)	Sahitya bhavan publications, ISBN9789389797077

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HOD
Dr. N. Lavanya


Joint Dean
Dr. V. Sangeetha


Dean
Dr. N. Lavanya


Principal
Dr. N. Kamala

UBB – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI 627011
SEMESTER VI

Programme: UG	Subject: Business Administration
Course code:19UBBP61	Course Title: Project
Category: Project	Credits: 8/8hours

Project Guidelines

(For Certificate, Diploma, Advanced Diploma, UG, PG, and MPhil., programmes)

Duration of the project work shall be for a period of one semester

Project work shall be carried out under the supervision of a faculty member of the department concerned or from allied department, if the work is of interdisciplinary in nature or with internal or external expert beyond the department as co-supervisor.

The supervisor allocation shall be made by lot by the end of 4 semester in UG, by the end of 2nd semester in PG (April 1st week) and for MPhil., 15 days after joining the programme. The allocation details may be sent to Autonomous cell by 10th April for UG & PG and for MPhil., 30 days after joining the programme.

After allocation, the respective supervisors have to conduct orientation/counsel meeting with the assigned candidates about the project with P3 agenda (Participation, Presentation, and Publication) towards career prosperity. Subject Knowledge towards Pure and Applied part may be highlighted for doing the project.

The HoD shall review the coverage of different fields of the subject amongst the candidates and to see that the students should not focus on particular fields alone.

The candidates have to study/refer journals/previous works/focus on the proposed topic in the summer vacation and 5-10 titles of proposed project on respective subject (discipline) or on allied subject (interdisciplinary) with economic/scientific/social/local/state/national/global issues may be submitted to the guide by May end.

The supervisor shall guide the candidates on their choice after having reviewed proposed topics, the mindset and work culture, provided the work is of innovative in nature, affordable and with future prospective. If not satisfied with the proposed topic/due to lack of infrastructure/beyond scope and practicality, supervisor herself shall suggest the field/topic for work. Hard copy of proposed title with objectives in the prescribed format to be submitted to CoE’s Office through Dean, Autonomous in the last week of June

Parent’s undertaking/willingness may be obtained in writing by inviting the parents for department level meeting after explaining its importance, guidelines, safety precautions related to outdoor project commitments etc.

Project period – June to September. Last date for the submission of dissertation is 15th October

Project Progress Review has to be conducted in 5th July, 5th August and 5th September. Report Card for individual candidates shall be maintained at the department for audit at any time. (Proforma)

If a candidate fails to submit the dissertation on or before the specified date, she may submit the same on or before 15th November by paying prescribed late fee.

The evaluation of dissertation will be as per the University/Autonomous norms

The assessment of Project component during the Course and in the End-semester examinations shall be carried out as follows:

CIA (Max: 25 Marks)	End – Semester Examination (Max.: 75 marks)		
Marks for Reviews (Average of the best two of the three compulsory Reviews) (Max.: 25 marks)	Marks for Thesis Evaluation (Max.: 25 marks)	Marks for Viva-Voce Exam. (wit the Deptl. Faculty Member / Course students) (Max.: 50 marks)	Total (Max.)

Review I (Max.)	Review II (Max.)	Review III (Max.)	Average of the best two (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	
25	25	25	25*	12.5	12.5	25	25	75*

* The marks secured may be rounded off to its nearest integer.

PG and M.Phil., students should carry out the project individually. UG students may undertake group projects with a maximum of three students in a group. The group may be of interdisciplinary nature combining students from two to three departments with the concern of the respective guides. An undertaking, in this regard, has to be submitted by the group of students with the endorsement by the guides.

LATEX procedure shall be followed for Mathematics projects.

GUIDELINES ON THESIS (WITH STATIONERY ECONOMY MEASURES):

Number of Pages (inclusive of prefix and suffix):

- i) V semester Project Maximum 40 pages;
- ii) VI semester Project Maximum 60 pages,
- iii) PG Projects Maximum 80 pages;
- Iv) MPhil., maximum 100 pages.

Size of the paper A4; Font Times New Roman; Title 14 Capitals/Bold; Subtitle 12 Capitals/Bold; Running matter 11.

Left and Right margin 1 and half inch; Top and bottom margin 1 inch

Line space 1.5

Table and Figures shall be in separate sheets (without page number). More than 1 table or figure or plate is permitted in a page. Table number followed by the title should be on the top of the respective table. Similarly Figure Number followed by title be at the bottom of the respective figures. Regarding Plates ie photographs only original photographs (printed in photo sheet) of the work carried out and scientifically relevant to be included. The size the photographs should be reduced and neatly arranged in a page with appropriate title or sub title. Plate Number followed by the title be at the bottom of the photographs concerned.

Number of copies:

Copy 1 – Student copy – Neatly typed on one side with good binding to be submitted (to be returned immediately after examination)

Copy 2 – Department copy - Neatly typed on both sides of the paper with stapler pin binding –Copies of all students have to be bound in volumes of 1 or 2 and kept in the department for reference.

Copy 3 - Autonomous Office copy – Projects of all students as one CD/DVD & Hard copy of the abstract/extended abstract as OHP bound booklet.

For PG & MPhil., (Candidate copy - Hard bound (one side print), Autonomy (CD), Guide copy (CD), Department (CD containing all projects of the class), Central library (CD containing all projects of the class) & Hard copy of the abstract/extended abstract as OHP bound booklet.

Uniform structure/composition of the thesis:

Uniformity in Prefix contents for all disciplines	
1	Wrapper page
2	Wrapper page copy
3	Contents
4	Acknowledgement by the candidate
5	Declaration by the Candidate with candidate’s Photo attested by HoD

6	Certificate by the supervisor, countersigned by HoD		
7	Evaluation Examiners Page		
Running matter structure Arts, Languages, Humanities		Running matter structure Science	
1	Abstract/Extended Abstract	1	Abstract/Extended Abstract
2	Introduction	2	Introduction
3	Review of Literature	3	Review of Literature
4	Profile of The Study	4	Materials
5	Methodology & Data collection	5	Methodology
6	Analysis and Interpretation	6	Results
7	Findings, Suggestions and Conclusion	7	Discussion
8	Bibliography(Uniform format)	8	Bibliography (Uniform format)
Uniformity in Suffix – contents			
Publications – Xerox of Abstracts/extended abstracts/Full papers			

Bibliography: Arts & Science.

Research article:

Latha, P., Dhanabackialakshmi, R., Kumar, P.S. and Karuthapandian, S. 2016. Synergistic effects of trouble free and 100% recoverable CeO₂/Nylon nanocomposite thin film for the photocatalytic degradation of organic contaminants. Separation and Purification Technology, 168(2): 124–133

Conference / Seminar / Symposium papers

Peng, J., Zhang, X., Lei, Z., Zhang, B., Zhang, W. and Li,Q. 2009. Comparison of several cloud computing platforms. In: Proceedings of Second International Symposium on Information Science and Engineering, 23 – 27 Books

Versteeg, H.K. and Malalasekera, W. 2007.An Introduction to Computational Fluid Dynamics. II Edn. Pearson Education Ltd., New York, pp. 517

Book Chapters

Wade, S.E. 1981. Statistical designs for survey research. In: Stempel, G.H. and Westley, B.H. (Eds.). Research methods in mass communication.Printice Hall India Learning India Ltd., New Delhi, pp. 167

Web reference

National Institute of Mental Health.2018, July.Anxiety disorders. U.S. Department of Health and Human Services, National Institutes of Health. <https://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>

(Author to be included first, date to be included before month, if available)



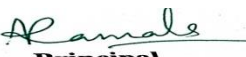
HOD
Dr. N. Lavanya



Joint Dean
Dr. V. Sangeetha



Dean
Dr. N. Lavanya



Principal
Dr. N. Kamala

SRI SARADA COLLEGE FOR WOMEN
(An Autonomous Institution)
(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)
TIRUNELVELI – 627 011
Department of Business Administration
Certificate Course Entrepreneurship Even Semester 2019-20

CHAIR PERSON OF THE COURSE

Smt.N.Lavanya
Head & Asst. Prof
Department of Business Administration
Sri Sarada college for women,
Tirunelveli.

COURSE TEACHER

V.RAJALAKSHMI
Asst. Prof
Department of Business Administration
Sri Sarada college for women,
Tirunelveli.

COURSE TITLE

Entrepreneurship

OUTCOME OF THE COURSE

To understand different methods to assess the attractiveness of business opportunities.

To understand what characterizes an attractive business opportunities and common pitfalls during entrepreneurial process.

To understand the key risks and the most effective processes in bringing different types of product and services to market.

To understand different entrepreneurship theories and their implication.

SYLLABUS /UNITS

Unit – I

Entrepreneurship – Meaning – Importance. Types – Role of Entrepreneurs in Economic Development – Qualities of an Entrepreneur – Entrepreneurship as a career.

Unit – II

How so start Business – Product selection – Form of ownership – plant location – Land, Building. Water and power – Raw Materials - Machinery – Man power – Other Infrastructural facilities – Licensing Registration and local byelaws.

Unit – III

Institutional arrangement For Entrepreneurship Development – D.T.C., I.T.C.O.T., S.T.D.C.O., N.S.I.C., S.I.S.I., - Institutional Finance to Entrepreneurs. T.I.I.C. S.T.D.B.I, Commercial Banks – Incentives to small scale Industries.

Unit - IV

Project Report – Meaning and Importance – Project Identification – Contents of a Project Report – Formulation of a project report – Project appraisal – Market Feasibility- Technical Feasibility – Financial Feasibility and Economic Feasibility.

Unit –V

Entrepreneurship Development in India – Women Entrepreneurship in India – Sickness in small scale industries and their remedial measures.

Reference Books:

Entrepreneurship Development in India- Dr. C.B. Gupta Dr. N.P. Srinivasan Sultan Chand and Sons.

Entrepreneurial Development Principles, Policies and Programmes – P. SARAVANAVEL Kay, Ess, Pee, Kay.

Dynamics of Entrepreneurial Development in India – VASANT DESAI Himalaya Publishing House.

ELIGIBILITY FOR ADMISSION

+2 Or Equivalent were eligible

DURATION OF THE COURSE 30 Hours

COMPONENTS OF EXAMINATION

- Theory -75 Marks
- Assignment – 5 Marks
- Quiz – 10 Marks
- Presentation – 10 Marks

GRADING SYSTEM AND CERTIFICATION

Overall Grade

Marks	Grade
91 – 100	H
81 – 90	D+
71 – 80	D
61 – 70	A
51 – 60	B
41 – 50	C+
35 – 40	C

MODEL QUESTION PAPER

Multiple Choice Question	10 X 1 = 10
Answer the following in 250 words	5 X 5 = 25
Answer the following in 600 words	5 X 8 = 40
Total	75


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TIRUNELVELI – 627 011

Department of Business Administration
DIPLOMA COURSE DAIRY DEVELOPMENT PLANS Even Semester 2019-20

CHAIR PERSON OF THE COURSE

Smt.N.Lavanya
Head & Asst. Prof
Department of Business Administration
Sri Sarada college for women,
Tirunelveli.

COURSE TEACHER

P.SHUNMUGATHANGAM
Asst. Prof
Department of Business Administration
Sri Sarada college for women,
Tirunelveli.

COURSE TITLE

Dairy Development Plans

OUTCOME OF THE COURSE

To enlighten the students about the dairy development.
To understand the organizational structure of dairy co-operatives at village, district and state levels.

LEARNING OUTCOMES

Students learn about the role of dairying and status of milk production in India
Students will acquire skill on dairy cooperative functions and management system
Students will know about the government and institutional activities and schemes related to dairy development.

SYLLABUS /UNITS

Unit I : Role of dairying in Indian economy and rural development. Dairying as source of additional income and employment. Advantages in dairying. Principle involved in successful dairying. Total milk production in country and state with reference to Global milk production – Per capita availability of milk – consumption pattern – annual rate of growth of milk production. Role of milk and milk products in human nutrition. ICMR recommendation.

Unit II : Dairy development programme implemented in India. Operation flood programme. Key village scheme - Intensive Cattle Development Programme (ICDP) - Intensive Dairy Development Programme (IDDP). Institution for dairy development: NDRI, NDDB, NDC and TCMPPF.

Unit III : Cooperative dairying – structure of dairy cooperatives, OBJECTIVES and functions, primary milk cooperative societies, district milk producer's cooperative union, state level federations. ANAND pattern and perspectives.

Unit IV : National Dairy Plans: NDPI – NPBB and DD – CCDO- Dairy development under various five year plans- Expenditure on Animal husbandry and Dairying during various plans – Important developments in Different five year plans.

Unit V : Dairy problems; Resource inadequacy, Strategies and Policies: SWOT analysis of Indian dairy industry.

Reference Books:

Anantha Krishnan, C.P., (1991), Technology of milk processing, Sri Lakshmi Publications, Chennai -10.
Banerjee, G.C. 1998. A Textbook of Animal husbandry. Oxford and IBH Publ. Co. Ltd., New Delhi.
Dairy India Year Book. 2007 & 2017. P.R. Gupta Publ., New Delhi.
Mudgal, V.D., Singhal, K.K. and Sharma, D.D. 1995. Dairy animal production. 1st ed. International Book Distributing Co., Lucknow.
Nataraj, B.S. 2007. Marketing of milk and milk products: opportunities for entrepreneurship. In: Souvenir, National workshop on Entrepreneurship Development in Dairy and Food Industry, NDRI, Karnal, December 2005.
Sastry, N.S.R. and Thomas, C.K. 1996. Livestock Production Management. Kalyani Publ., New Delhi.
Verma, D.N. 1999. Livestock Production Management in tropics. Kalyani publ., New Delhi.

ELIGIBILITY FOR ADMISSION

+2 Or Equivalent were eligible

DURATION OF THE COURSE

Hours

COMPONENTS OF EXAMINATION

- Theory -75 Marks
- Assignment – 5 Marks
- Quiz – 10 Marks
- Presentation – 10 Marks

GRADING SYSTEM AND CERTIFICATION

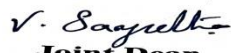
Overall Grade

Marks	Grade
91 – 100	H
81 – 90	D+
71 – 80	D
61 – 70	A
51 – 60	B
41 – 50	C+
35 – 40	C

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Sri Sarada College for Women, Tirunelveli 627011
Reaccredited with “A” grade by NAAC
A branch of Sri Ramakrishna Tapovanam, Tirupparaithurai
Affiliated to Manonmaniam Sundaranar University, Tirunelveli
Degree: B.Sc; Subject: MATHEMATICS
Programme Structure (2019-2022)

Sem	Part	Category	Course code	Course Title	Hours/week			Credits
					L	P	T	
1	I	Language	19P1TA1/19P1SA1	Tamil/Sanskrit	6	0	6	4
1	II	Language	19P2EA1	English	6	0	6	4
1	III	Core-1	19UMAC11	Calculus	5	0	5	5
1	III	Core-2	19UMAC12	Classical Algebra	5	0	5	5
1	III	Allied-I	19UPHA11	Allied Physics I	4	2	6	4
			*19UMAA11	*Algebra and Differential Equations	*6	0	*6	*4
1	IV	Common	19UCES11	Environmental Studies	2	0	2	2
Subtotal					28	2	30	24
2	I	Language	19P1TA2/19P1SA2	Tamil/Sanskrit	6	0	6	4
2	II	Language	19P2EA2	English	6	0	6	4
2	III	Core-3	19UMAC21	Analytical Geometry - 3D	5	0	5	5
2	III	Core-4	19UMAC22	Differential Equations	5	0	5	5
2	III	Allied-II	19UPHA21	Allied Physics II	4	2	6	4
			*19UMAA21	*Vector Calculus and Fourier Series	*6	0	*6	*4
2	IV	Common	19UCVE21	Value Based Education	2	0	2	2
Subtotal					28	2	30	24
3	I	Language	19P1TA3/19P1SA3	Tamil/Sanskrit	6	0	6	4
3	II	Language	19P2EA3	English	6	0	6	4
3	III	Core-5	19UMAC31	Sequences and Series	6	0	6	5
3	III	Allied-III	19UMAA31	Mathematical Statistics	6	0	6	3
3	III	Skill Based Core	19UMAS31	Trigonometry and Vector Calculus	4	0	4	4
3	IV	Non-Major Elective	19UNMA3A	Basics of Statistics	2	0	2	2
			19UNMA3B	Mathematics for Competitive Examinations-I				
3	IV	Common	19UCYP31	Yoga Theory and Practices				1
Subtotal					30	0	30	23
4	I	Language	19P1TA4/19P1SA4	Tamil/Sanskrit	6	0	6	4
4	II	Language	19P2EA4	English	6	0	6	4
4	III	Core-6	19UMAC41	Modern Algebra	6	0	6	5
4	III	Allied-IV	19UMAA41	Advanced Statistics	6	0	6	3
4	III	Skill Based Core	19UMAS41	Laplace Transforms and Fourier Series	4	0	4	4
4	IV	Non-Major Elective	19UNMA4A	Essentials of Statistics	2	0	2	2
			19UNMA4B	Mathematics for Competitive Examinations –II				
4	IV	Common	19UCDE41	Computers for Digital Era				1
4	V	Common	19UNCC41/19UNSS41/19UYRC41/19URRC41/19UPESY41/19UCCC41/19USSS41/19UCGC41	Extension Activity (NCC/NSS,YRC/RRC/PESSY/CCC/SSS/CGC)				1
Subtotal					30	0	30	24
5	III	Core-7	19UMAC51	Real Analysis	8	0	8	5
5	III	Core-8	19UMAC52	Mechanics	7	0	7	5
5	III	Major Elective-I	19UMAE51	Fuzzy Sets and Logic	7	0	7	5
			19UMAE52	Discrete Mathematics				
			19UMAE53	Astronomy				
5	III	Project	19UMACP51	Mathematics for Competitive Examinations and Project	6	0	6	6
5	IV	Skill Based Common	19UCPD51	Personality Development	2	0	2	1
Subtotal					30	0	30	22
6	III	Core-9	19UMAC61	Linear Algebra	6	0	6	5
6	III	Core-10	19UMAC62	Complex Analysis	6	0	6	5
6	III	Core-11	19UMAC63	Number Theory	6	0	6	5
6	III	Core-12	19UMAC64	Graph Theory	6	0	6	5
6	III	Major Elective-II	19UMAE61	Combinatorial Mathematics	6	0	6	5
			19UMAE62	Operations Research				
			19UMAE63	Physical Cosmology				
Subtotal					30	0	30	25
Total					176	4	180	142

*Subject offered by the Department of Mathematics


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DEAN
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SEMESTER I

Programme: B.Sc.,	Subject: Mathematics	
Course code: 19UMAC11	Course Title: Calculus	
Category: Core-1	Credits:5	Hours: 5

Outcomes:

1. To understand the basic concepts of Calculus.
2. To gain knowledge in applications of Calculus.
3. To solve problems

Units	Detailed Syllabus	Hours
1	Envelopes – Curvature -Radius of curvature and center of curvature in Cartesian and polar coordinates.	15
2	Pedal Equations – Involutives and Evolutes - Chord of a Curvature - Asymptotes .	15
3	Singular points (Node, Cusp , Conjugate Points)-Tracing of curves (Cartesian only)	15
4	Double and Triple Integrals – Changing the order of integration – Jacobians and change of variables – Applications of Multiple integrals	15
5	Beta and Gamma functions – Application of Beta and Gamma Functions in evaluation of Double and Triple Integrals, Improper Integrals.	15

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Calculus Volume-I	T.K.Manickavasagam Pillai and S.Narayanan	I, 2004	Viswanathan Publishers and Printers
2	Calculus Volume- II	T.K.Manickavasagam Pillai and S.Narayanan	I, 2004	Viswanathan Publishers and Printers
3	A Text book of Calculus	Dr.J.Paulraj Joseph & Dr.G.Mahadevan	I, 2016	Anuradha Publications

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Differential Calculus	Shanti Narayan & P.K.Mittal	I, 2006	S.Chand & Company LTD
2	Integral Calculus	Shanti Narayan & P.K.Mittal	I, 2008	S.Chand & Company LTD


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SEMESTER I

Programme:B.Sc.,	Subject: Mathematics	
Course code: 19UMAC12	Course Title: Classical Algebra	
Category:core-2	Credits: 5	Hours: 5

Outcomes:

1. To understand the basic concepts of equations.
2. Learnt to solve the algebraic equations of higher order using the methods discussed.

Units	Detailed Syllabus	Hours
1	Theory of equaions- Remainder Theorem - Fundamental theorem of algebra – Formation of equations- Relation between roots and coefficients of algebraic equations- Symmetric functions of roots in terms of coefficients.	15
2	Sum of the r^{th} powers of the roots of equations –Newton’s Theorem- Reciprocal equations	15
3	Transformation of equations – To increase or decrease the roots of a given equation by a given quantity – Descarte’s rule of signs- Rolle’s Theorem.	15
4	Cardon’s methods for solutions of cubic equations – Ferrari’s method for solution of biquadratic equation	15
5	Multiple roots, Sturm’s Theorem, Approximate solutions of equations using Newton’s method and Horner’s method.	15

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Algebra	T.K.Manickavasagam Pillay and S.Narayanan		Viswanathan Publishers and Printers
2	Classical Algebra	Dr.S.Arumugam & A.Thangapandi Issac	I, 2003	New Gamma Publishing House
3	Classical Algebra	Joseph A. Mangaladoss	I, 2004	Presi-Presi Publications

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Algebra	S.Arumugam & Issac	I, 2006	New Gamma Publishing House
2	Ancillary Mathematics Volume-I	T.K.Manickavasagam Pillay and S.Narayanan, R.Hanumantha Rao	I, 2007	S. Viswanathan Publishers and Printers


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SEMESTER I

Programme: B.Sc.,	Subject: Mathematics (for Physics/Chemistry)	
Course code: 19UMAA11	Course Title: * Algebra and Differential Equations	
Category: Allied-I	Credits:4	Hours: 6

Outcome:

1. To understand the basic concepts of equations
2. Learnt to solve the algebraic equations of higher order using the methods discussed

Units	Detailed Syllabus	Hours
1	Theory of equations –Formation of Equations – Relation between roots and Coefficient – Reciprocal equations.	18
2	Transformation of equations- Approximate Solution to equations – Newton’s method and Horner’s method.	18
3	Matrices – Rank of a matrix - characteristic equations of a matrix – Eigen Values and Eigen vectors – Cayley Hamilton Theorem and Simple problems.	18
4	Differential Equations of first order but of higher degree – Equations solvable for p, x, y - Partial differential equations – formations – Solutions –Lagrange’s Equation – Standard form $Pp + Qq = R$.	18
5	Laplace Transformations –Inverse Laplace Transformation – Solution of a differential equation using Laplace Transform	18

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Allied Mathematics-I	S.Arumugam & Issac	2016	New Gamma Publishing House
2	Algebra	T.K. Manickavasagam Pillay and S.Narayanan		Viswanathan Publishers and Printers
3	Ancillary Mathematics Volume-I	T.K.Manickavasagam Pillay and S.Narayanan, R.Hanumantha Rao	2007	S. Viswanathan Publishers and Printers

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Classical Algebra	Dr.S.Arumugam & A.Thangapandi Issac	2003	New Gamma Publishing House
2	Dr.A.Singaravelu	Allied Mathematics	2007	Meenakshi Agency


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SEMESTER II

Programme: B.Sc.,	Subject: Mathematics	
Course code: 19UMAC21	Course Title: Analytical Geometry - 3D	
Category: Core-3	Credits:5	Hours: 5

Outcome:

1. To gain the knowledge about three dimension co-ordinate system.
2. To understand the basic concept of direction cosines, direction ratios and equation of straight lines
3. To learn about Tangent and normal of a plane

Units	Detailed Syllabus	Hours
1	Analytical Geometry of 3D Co-ordinate system, direction cosines, direction ratios- General point on a line.	15
2	Equation of plane in different forms – angle between planes – Length of Perpendicular – angle bisection.	15
3	Equation of a line in different forms – image of a point – image of a line – The plane and the straight line – angle between plane and line – coplanar lines –Skew lines - Shortest distance between two lines.	15
4	Sphere-Tangent plane-Circle of intersections-Tangency of spheres-coaxial system of spheres-Radical Planes-equation of a circle –Orthogonal Spheres.	15
5	Equation of a cone – cone with vertex at the origin-Tangent plane and normal- Quadratic cone with the vertex at origin- Right circular cone- Cylinder-Right circular cylinder-enveloping cylinder.	15

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	A text book of Analytical Geometry Part II – 3 dimensions	T.K. Manicavachagom Pillai &T.Natarajan	2012	S.Vishwanathan Printers & Publishers

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Analytical Geometry(3D) and Vector Calculus	S. Arumugam & Issac	1995	New Gamma Publication House
2	Analytical Geometry of Three Dimension	Duraipandian P. Laxmi Duraipandian And D.Muhilan	Reprint 2000	Emerald Publishers
3	Text book of Analytical Geometry of Three	P.K.Jain ,Khalil Ahmad	Second Edition	Wiley Eastern Limited


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SEMESTER II

Programme: B.Sc.,	Subject: Mathematics	
Course code: 19UMAC22	Course Title: Differential Equations	
Category: Core-4	Credits:5	Hours: 5

Outcome:

1. To introduce the first order and higher degree equations.
2. To introduce the method of solving the Clairaut's form equation and lagrange's equation.
3. Learnt to identify the types of differential equations and to solve them using appropriate method.

Units	Detailed Syllabus	Hours
1	First order first degree equations(Theory without problems),First order higher degree equations – Solvable for x, y, p and Clairaut's form – Simultaneous differential equations	15
2	Ordinary Differential equation-Second order linear differential equations with constant coefficients – P.I. for the functions of the form e^{ax} , $\sin ax$, $\cos ax$, x^n , $e^{ax} f(x)$ and $x^n f(x)$	15
3	Linear equations of second order with variable coefficients – Homogeneous equations - Equation reducible to homogeneous equations .	15
4	Partial differential Equation of first order - Formation of equations by elimination of arbitrary constants and functions - Defintion of general , particular and complete solutions – Solving all standard forms (except Charpit's method)-Lagrange's differential equations	15
5	Application of first order equations – Growth and Decay – Chemical reactions – Newton's law of cooling – Brachistocrone problem – simple electric circuits-Falling bodies and other rate problems.	15

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Differential Equations and its Applications	Narayanan .S and T.K. Manickavasagam Pillai	2003	S. Viswanathan Printer Pvt. Ltd.

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Differential equations and their applications	Sankaranarayanan and Mangaldoss, ShakulHamid	6 th revised edition,1994	Om Pathippagam
2	Differential equations and applications	Dr.S.Arumugam and A.Thangapandi Issac	2003	New Gamma publishing House
3	Mathematics for B.Sc., Volume III	Kandasamy.P and K. Thilagavathi	2004	S. Chand &Co , New Delhi


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SEMESTER II

Programme: B.Sc.,	Subject: Mathematics (for Physics/Chemistry)	
Course code:19UMAA21	Course Title: Vector Calculus & Fourier Series	
Category: Allied-II	Credits:4	Hours: 6

- Objectives:
1. To provide basic knowledge of vector differentiation and integration.
 2. To solve integration problems.
 3. To understand the evaluation of double and triple integrals.

Units	Detailed Syllabus	Hours
1	Vector differentiation-Gradient-Divergence and curl	18
2	Evaluation of double and triple integrals- <u>Jacobian</u>	18
3	Vector integration-Line, surface and volume integrals.	18
4	Green’s, stokes and Divergence theorems (without proof)-simple problems.	18
5	Fourier series-Even and odd functions-Half range Fourier series.	18

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Allied Mathematics paper-II	P.Kandasamy & K.Thilagavathy	2004	S.Chand & Company PVT.Ltd.
2	Calculus Volume II	Narayanan .S and T.K. Manickavasagam Pillai	2004	S. Viswanathan Printer Pvt. Ltd.
3	Vector Calculus	R.Gupta	-	Laxmi Publications

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Allied Mathematics	Dr.A.Singaravelu	2007	Meenakshi Agency
2	Ancillary Mathematics Volume-II	T.K.Manickavasagam Pillay and S.Narayanan, R.Hanumantha Rao	2007	S. Viswanathan Publishers and Printers

- Outcomes:
- Upon the completion of Vector Calculus & Fourier Series, the students will be able to
1. solve integration problems
 2. understand the evaluation of double and triple integrals.


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SEMESTER III

Programme: B.Sc.,	Subject: Mathematics	
Course code: 19UMAC31	Course Title: Sequences and Series	
Category: Core-5	Credits: 5	Hours: 6

Objectives:

1. To lay a good foundation of Classical Analysis
2. To study the behavior of Sequences and series
3. To gain knowledge about Comparison test and n^{th} test.

Unit	Detailed Syllabus	Outcomes	Hours
1	Real Number System: The rational numbers, the irrational numbers, upper bounds, maximum element least upper bound, The Completeness axioms, absolute values, triangle inequality, Schwartz inequality.	Students can 1.develop the basic concepts on real number system. 2.understand the behavior of upper and lower bound. 3.discuss the knowledge of triangle and Schwartz inequality.	18
2	Sequences: Bounded sequences-monotonic sequences-convergent sequences-divergent and oscillating sequences –The algebra of limits.	Students can 1.understand the different types of sequences. 2.prove the properties of convergent and divergent sequences. 3.verify the convergent and divergent sequences.	18
3	Behaviour of monotonic sequences – Cauchy’s first limit theorem-Cauchy’s Second limit theorem - Cesaro’s theorem- subsequences – Cauchy sequence-Cauchy’s general principle of convergence.	Students can 1.prove Cauchy’s first limit theorem and second theorem. 2.understand the subsequences of upper and lower limit sequences. 3.discuss the behavior of the geometric sequences.	18
4	Series: Infinite series -term test- Comparison test- Kummer’s test- D’Alemberts ratio test – Raabe’s test-Gauss test –Root test-Cauchy’s Condensation Test (with out proof).	Students can 1.discuss the behavior of geometric series. 2.know the different tests of convergence and divergence of a series of positive terms and their proofs. 3.verify the convergence and divergence by using different tests.	18
5	Alternating series – Leibnitz’s test – Tests for convergence of series of arbitrary terms – Multiplication of series – Abel’s Theorem- Merten’s theorem- Power Series-Taylor’s series –Maclaurin’s Series	Students can 1.analyze the concepts in functions of real numbers. 2.illustrate and find the limit superior and limit inferior properties of real numbers 3.gain knowledge about Abel’s, Merten’s and Taylor’s series.	18

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Sequences and Series	Arumugam. S , Thangapandi Issac and Somasundaram	2019(1)	Yesdee Publications Private Ltd., Chennai.

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Methods of Real Analysis	Richard R Goldberg	1970(2)	Oxford and IBM Publishing Co., New Delhi
2	Mathematical Analysis	Tom M. Apostol	1974(2)	Narosa Publishing House, New Delhi


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SEMESTER III

Programme: B.Sc.,	Subject: Mathematics	
Course code: 19UMAA31	Course Title: Mathematical Statistics	
Category: Allied-III	Credits: 3	Hours: 6

Objectives:

- To study the concept of measures of dispersion and measures of central tendencies.
- To develop the concept of Probability distribution.

Unit	Detailed Syllabus	Outcomes	Hours
1	Moments, Skewness and Kurtosis - Curve fitting - method of least squares – Fitting lines – Parabolic, Exponential and Logarithmic curves.	Students can 1.understand Moment, skewness and kurtosis. 2.fit a Straight line. 3.compute parabolic and logarithmic curves.	18
2	Correlation and Regression – Scatter Diagram – Karl Pearson’s coefficient of correlation – Properties – Lines of Regression – Coefficient of Regression and properties – Rank Correlation.	Students can 1.calculate the correlation coefficient for the given data. 2.develop clear idea regarding correlation and regression. 3. compute rank correlation for the given data.	18
3	Association of Attributes – Consistency of data – criteria for independence – Yule’s coefficient of Association.	Students can 1.understand attributes and consistency of the given data. 2.calculate the criteria for independence. 3.understand Yule’s coefficient of association.	18
4	Random variable – Distribution function – properties of Distribution function – Mathematical Expectation – Addition theorem of Expectation – Multiplication theorem of Expectation – Moment generating function – cumulants – characteristic function – Properties of characteristic function.	Students can 1.create knowledge about distribution function and Mathematical Expectation. 2.discuss the moment generating function 3.compute characteristic function and their properties.	18
5	Discrete and continuous Probability Distributions - Binomial and Poisson Distribution and their moments, Generating function, characteristic function, properties and simple applications. Normal Distribution – Standard normal distribution and their properties – simple problems.	Students can 1.derive mathematical expectation, binomial, poisson and normal distribution. 2.understand the probability distributions. 3.gain knowledge about the concept of probability.	18

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Statistics	Dr.S.Arumugam	2015(1)	New Gamma Publishing House, Palayamkottai

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Fundamentals of Mathematical Statistics.	Gupta .S.C and V.K. Kapoor	2000(11)	Sultan Chand & Sons, New Delhi.
2	Introduction to Mathematical Statistics	Robert V.Hogg, Allen T.Craig	2002(5)	Pearson Education
3	Mathematical Statistics	J. N.Kapur, H. C. Saxena	2006(20)	S. Chand & Company LTD


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SEMESTER III

Programme: B.Sc.,	Subject: Mathematics	
Course code: 19UMAS31	Course Title: Trigonometry and Vector Calculus	
Category: Skill Based Core	Credits: 4	Hours: 4

Objectives:

- To enrich with the knowledge of trigonometric functions
- To have a good foundation for vector calculus.

Unit	Detailed Syllabus	Outcomes	Hours
1	De Moivre’s Theorem(Statement only) – Expansion of $\sin n\theta, \cos n\theta$ and $\tan n\theta$ - Power series of $\sin n\theta, \cos n\theta$ and $\tan n\theta$ (Statement only)- Simple problems Expansion of $\sin^n \theta, \cos^n \theta$ and $\sin^n \theta \cos^m \theta$	Students can 1.gain knowledge in the expansion of trigonometry functions. 2.derive the expressions for $\sin n\theta, \cos n\theta$ and $\tan n\theta$ 3.Solve the problems on expansions of Cosine and Sine series	12
2	Hyperbolic functions – Inverse Hyperbolic functions – Logarithm of a complex number – Gregory series – Calculation of the value of θ and simple problems	Students can 1.understand the basic concept of hyperbolic functions. 2.understand the logarithm of a complex number. 3.gain the knowledge of Gregory series	12
3	Vector Differentiation – Gradient, Divergence, Curl and their Properties – Simple problems	Students can 1.understand vector and scalar point functions. 2.discuss the properties of divergence and curl. 3.gain knowledge about vector operator and gradient.	12
4	Vector Integration – Line integrals, Surface integrals, Volume integrals (Simple problems)	Students can 1.understand the concept of vector integration of point function. 2.solve the problems on line and surface integral. 3.understand the volume integral.	12
5	Gauss divergence theorem, Green’s Theorem and Stoke’s Theorem (Statement without proof)- applications (Simple problems)	Students can 1.compute Gauss divergence theorem. 2.understand the Green’s and stoke’s theorems. 3.discuss the behaviour of Green’s and Stoke’s problems.	12

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Trigonometry	Narayanan, T. K. Manicavachagom Pillay	Reprint 2003	S. Viswanathan Printer Pvt. Ltd.
2	Analytical Geometry and Vector Calculus	S. Arumugam, A. Thangapandi Isaac	2017(1)	New Gamma Publishing House

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Algebra and Trigonometry	T.Veerarajan	2020(1)	Yes Dee Publications and private Ltd.
2	Allied Mathematics – II -Vector Calculus	S. Arumugam and Isaac	2012(1)	New Gamma Publishing House
3	Allied Mathematics Paper – II	P.Kandasamy K.Thilagavathy	Reprint 2013	S.Chand & Company Ltd


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SEMESTER III

Programme: B.Sc.,	Subject: Mathematics	
Course code: 19UNMA3A	Course Title: Basics of Statistics	
Category: Non Major Elective	Credits: 2	Hours: 2

Objectives:

1. To provide basic knowledge of correlation and regression.
2. To develop a working knowledge to handle practical problem.

Unit	Detailed Syllabus	Outcomes	Hours
1	Correlation - Rank Correlation.(Problems only)	Students can 1.calculate the correlation coefficient for the given data. 2.compute Rank correlation for the given data. 3.understand the concepts of basic statistics.	6
2	Regression - Lines of Regression- Regression Coefficient	Students can 1.develop the clear idea regarding Regression. 2.compute the lines of Regression. 3.understand the concept of regression coefficient.	6
3	Interpolation - Finite Differences	Students can 1.gain knowledge in interpolation. 2.analyze the finite differences. 3.understand the concept of finite differences	6
4	Newton's formula – Lagrange's Formula	Students can 1.understand the Derivation of Newton's and Lagrange's formula. 2.Test Statistical hypothesis. 3.solve real world problems in appropriate contexts.	6
5	Theory of Attributes - Consistency of data – Independence and Association of Data	Students can 1.understand theory of Attributes. 2.explain the concepts of consistency of data. 3.compute independence and association of data.	6

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Statistics	Dr.S.Arumugam	2015(1)	New Gamma Publishing House

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Statistics	Murray R.Spiegel & Larry J.Stephens	2005(2)	Tata McGraw-Hill Publishing Company Ltd, New Delhi.
2	Fundamentals of Mathematical Statistics	S.C.Gupta & V.K.Kapoor	2016(11)	Sultan Chand & Sons
3	Fundamentals of Applied Statistics	S.C.Gupta & V.K.Kapoor	Reprint 2003	Sultan Chand & Sons


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SEMESTER III

Programme: B.Sc.,	Subject: Mathematics	
Course code: 19UNMA3B	Course Title: Mathematics for Competitive Examinations-I	
Category: Non-Major Elective	Credits: 2	Hours: 2

Objectives:

1. To learn the problems solving techniques for aptitude problems.
2. To enable the students prepare themselves for various competitive examinations.

Unit	Detailed Syllabus	Outcomes	Hours
1	Simplifications –BODMAS - Modulus , Averages	Students can 1.crack the challenging problems of simplifications. 2.apply the right approach and easiest technique to tackle the problems in Mathematics. 3.learn the problem solving on Averages.	6
2	Ratio – Equality of ratios - Proportion – Some results in Proportion	Students can 1.gain the knowledge of Ratio and proportion 2.compute the problems on ratio and proportion.	6
3	Partnership Division of gain or loss – Percentage – Results on Population and Depreciation	Students can 1.crack the problem based on percentage and partnership. 2.learn and apply short tricks and logical method on percentages. 3.improve overall IQ and intelligent level.	6
4	Profit and Loss – Some results	Students can 1. solve the problems based on profit and loss. 2. like to solve the challenging problems of math. 3. learn more problems of time management.	6
5	Problems on numbers	Students can 1.solve many problems on numbers. 2.get rid of fear of solving quantitative aptitude section. 3.apply the right approach and the easiest technique to tackle math problems.	6

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Objective Arithmetic	R.S.Aggarwal	2009(3)	S.Chand & Co

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Quantitative Aptitude for Competitive examinations	Abhijit Guha	Reprint 2005(3)	Tata MCGraw-Hill Publishing Company Ltd
2	Quantitative Aptitude	S.P. Gupta & P.K. Gupta	2007(1)	Sultan Chand & Sons


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SEMESTER IV

Programme: B.Sc.,	Subject: Mathematics	
Course code: 19UMAC41	Course Title: Modern Algebra	
Category: Core-6	Credits: 5	Hours: 6

Objectives:

1. To introduce the concept of Groups, Rings and Ideals.
2. To study the concept of Homomorphism and Isomorphism.

Unit	Detailed Syllabus	Outcomes	Hours
1	Relation and functions-Groups – definition and Examples – Subgroup – order of an element – centre of a group – Normalizer and centralizer. Product of two subgroups – order of HK – Intersection and union of subgroups.	Students can 1.infer the knowledge in algebraic structure. 2.understand subgroup, center, and normalizer of a subgroup 3.analyze mapping groups, abelian groups, symmetric groups and their properties.	18
2	Cyclic groups – generators of a cyclic group – Number of generators of a cyclic groups – Cosets – Partitioning of a group by Cosets – Lagrange’s theorem – Euler’s theorem – Fermat’s theorem	Students can 1.compute the possible subgroups of given group in specific orders and will recognize them. 2.identify the structure preserve mapping in algebraic structure 3.prove Lagrange’s theorem, Euler’s theorem and Fermat’s theorem	18
3	Normal Subgroups : Quotient groups – Group Homomorphism – Canonical homomorphism – kernel of a homomorphism – Isomorphism – Automorphism – Inner automorphism – Permutation groups – Cayley’s theorem.	Students can 1.develop the aspects of subgroups, normal subgroups and quotient groups 2.distinguish the concept of homomorphism and automorphism 3.find the cycles and transpositions of a given permutations.	18
4	Rings: Definition and examples – Types of rings – Elementary properties of a ring – Integral domain – Field – Sub rings – Subfields – Ideals – Principal ideal – quotient ring – Maximal and prime ideals – characteristic of a ring – PID – UFD.	Students can 1.gain knowledge in ring theory. 2.expose the concepts of ideals quotient rings & Fields. 3.analyze and demonstrate the examples of ideals and quotient rings	18
5	Homomorphism of rings – Isomorphism – kernel of a homomorphism – Fundamental theorem – Field of quotients of an integral domain – polynomial rings – Division algorithm	Students can 1.inculcate their knowledge on algebraic equations and their relations with properties. 2.prove the Fundamental theorem of homomorphism 3.summarize and relate the properties of Groups, Rings and Fields.	18

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Modern Algebra	S.Arumugam & Isaac	2006(4)	SciTech Publications Pvt. Ltd., Chennai

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	A Course in Abstract Algebra	Vijay.K.Khanna, S.K.Bhambri	2011(3)	VIKAS Publisg House Pvt Ltd.,
2	Modern Algebra	Surjeet Singh, Qazi zameeruddin	2011(8)	VIKAS Publisg House Pvt Ltd.,


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SEMESTER IV

Programme: B.Sc.,	Subject: Mathematics	
Course code:19UMAA41	Course Title: Advanced Statistics	
Category: Allied-IV	Credits: 3	Hours: 6

Objectives:

1. To know the concept of index numbers.
2. To study the distributions functions.
3. To understand the concept of Analysis variance.

Unit	Detailed Syllabus	Outcomes	Hours
1	Characteristics of index numbers – Laspeyres's and Paasche's – Fisher's and Bowley's, Marshall and Edgeworth's index numbers – Tests – Unit test, Commodity Reversal test, Time Reversal test, circular test.	Students can 1.find index numbers for the given data. 2.demonstrate the ability to solve basic problems in Probability and Statistic 3.conduct hypothesis test using one and two tail test	18
2	Testing of Hypothesis – Null hypothesis and Alternate hypothesis – Type I and Type II errors – Critical Region, Level of significance – Test of significance for large samples – Testing a single proportion – Difference of proportions. Testing a single mean and Difference of means.	Students can 1.interpret the different types of distributions and discuss their statistical properties 2.identify the Type I and Type II errors. 3.demonstrate the ability to apply fundamental concepts in exploratory data analysis	18
3	Tests based on t-distribution – single mean and Difference of means – Tests based on F-distribution – Variance Ratio test – Tests based on Chi-square Distribution –Goodness of fit – Independence of Attributes.	Students can 1.understand the chi-Square goodness of fittest 2.analyze the data by using the chi-square test of independence 3.choose the appropriate measures and analyse the given data set.	18
4	Analysis of variance – one way and two way classified data – Basis of experimental design – Randomized Block Design – Latin square – simple problems.	Students can 1.understand the wide range of applications of probability distributions in real life 2.compute the analysis of variance, one way and two way classifications and Latin square design. 3.identify the appropriate probability distribution for a given situation.	18
5	Statistical Quality control – Definition – Advantages, Process control – Control chart, Mean chart, Range chart, P-chart, Product Control – Sampling Inspection Plans.	Students can 1.develop the clear idea regarding statistical quality control 2.compare the applications of statistics in business, inventory control etc. 3.demonstrate the knowledge of fixed sample and large sample statistical properties of point and interval estimators.	18

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Statistics	Dr.S.Arumugam	2015(1)	New Gamma Publishing House
2	Quantitative Techniques(for Unit V)	C.R.Kothari	2010(3)	VIKAS Publising House Pvt Ltd.,

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Mathematical Statistics	J. N.Kapur, H. C. Saxena	2006(20)	S. Chand & Company LTD
2	Statistics	Murray R.Spiegel & Larry J.Stephens	2005(2)	Tata McGraw-Hill Publishing Company Ltd, New Delhi.
3	Fundamentals of Mathematical Statistics	S.C.Gupta & V.K.Kapoor	2002(11)	Sultan Chand & Sons


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SEMESTER IV

Programme: B.Sc.,	Subject: Mathematics	
Course code:19UMAS41	Course Title: Laplace Transforms and Fourier Series	
Category: Skill Based Core	Credits: 4	Hours: 4

Objectives:

1. To know the concept of Laplace Transform
2. To study the concept of Fourier Series

Unit	Detailed Syllabus	Outcomes	Hours
1	The Laplace Transforms: Definitions – Sufficient conditions for the existence of the Laplace transform – Results – Examples – Laplace Transform of periodic functions – Some general theorems – Evaluation of certain integrals using Laplace transform	Students can 1.know the concept of Laplace transform 2.understand the Laplace transform of periodic functions 3.Solve the integrals using Laplace transform	12
2	Inverse Laplace Transforms- Results-Examples- To find the Inverse Laplace Transform of certain functions by the method of partial fractions	Students can 1.know the concept of inverse transforms 2.learn the properties of inverse Laplace transforms 3.Select and use the appropriate shift theorems in inverse Laplace transforms.	12
3	To Solve Ordinary Differential Equations with constant coefficients by Laplace transform-To Solve system of differential equations by Laplace Transform-To solve Ordinary differential equations with variable coefficients by Laplace transform-To Solve Certain equations involving integrals by Laplace Transform.	Students can 1.apply Laplace transform to solve differential equations. 2.use the methods of Laplace transforms to solve differential equations with constant coefficient. 3.gain the knowledge about system of differential equations by Laplace Transform	12
4	Fourier Series: Even and odd functions- Properties of odd and even functions	Students can 1.able to know the odd and even functions in Fourier series 2.understand the properties of Fourier series 3.solve the problems in odd and even functions in Fourier series	12
5	Half Range Fourier series-Development in Cosine Series-Development in Sine series- Change of Interval	Students can 1.expand any periodic functions in terms of Fourier transforms. 2.understand the nature of the Fourier series that represent even and odd functions and how derivation of a Fourier series can be simplified in this way. 3.expand an odd or even function as a half-range cosine or sine Fourier series	12

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Calculus –Volume III	S.Narayanan and T.K.Manickavasagam Pillay	Reprint 2012	S.Viswanathan (Printers & Publishers) Pvt. Ltd., Chennai -600 031

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Fourier Series and Integrals	Robert T. Seeley	2006	Dover Publications, New York.
2	Trigonometry, Fourier series and Laplace transform	S.Arumugam and A.Thangapandi Isaac	2017	New Gamma Publishing House
3	Differential Equations and its Applications	Narayanan .S and T.K. ManickavasagamPillay	Reprint 2012	S. Viswanathan Printers Pvt. Ltd.


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SEMESTER IV

Programme: B.Sc.,	Subject: Mathematics	
Course code:19UNMA4A	Course Title: Essentials of Statistics	
Category: Non-Major Elective	Credits: 2	Hours: 2

Objectives:

1. To introduce measures of central tendency to other major students.
2. To study index numbers and simple problems.
3. To know the concept of attributes.

Unit	Detailed Syllabus	Outcome	Hours
1	Theory of attributes for two attributes (simple problems)	Students can 1.know the concepts of attributes 2.gain knowledge about theory of attributes. 3.gain knowledge of other types of data reflecting quality characteristics including concepts of independence and association between two attributes.	6
2	Characteristic of index numbers –Laspeyre’s and Paasche’s	Students can 1.find index number for the given data. 2.apply the common elementary in the index formula 3.analyze and solve the problems by using Laspeyre’s and Paasche’s methods.	6
3	Bowley’s – Marshall index numbers	Students can 1.gain knowledge in Bowley’s-Marshall index numbers 2.develop clear idea regarding index numbers 3.understand the concept of applied statistics.	6
4	Fisher’s index number- Time reversal test (Problems only)	Students can 1.understand the concept of Fisher’s index number and Time reversal test. 2.acquire knowledge on vital statistics, index numbers and calculate an indices from given data. 3.know the information about various Statistical organizations in India and their functions for societal developments.	6
5	Fitting a straight line.	Students can 1.fit a straight line for the given data. 2.gain the knowledge of problem solving skills that are required to solve different type of statistics. 3.acquire fundamental systematic or coherent understanding of the academic field of Statistics and its different learning areas and applications.	6

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Statistics	Dr.S.Arumugam	2015(1)	New Gamma Publishing House

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Fundamentals of Mathematical Statistics	S.C.Gupta & V.K.Kapoor	2002(11)	Sultan Chand & Sons
2	Statistics Problems & Solutions	V.K.Kapoor	2000(7)	Sultan Chand & Sons


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SEMESTER IV

Programme: B.Sc.,	Subject: Mathematics	
Course code:19UNMA4B	Course Title: Mathematics for Competitive Examinations-II	
Category: Non-Major Elective	Credits: 2	Hours: 2

Objectives:

1. To learn the problems solving techniques for aptitude problems.
2. To enable the students prepare themselves for various competitive examinations.

Unit	Detailed Syllabus	Outcomes	Hours
1	Simple Interest – Meaning of Interest – Compound Amount & Compound interest	Students can 1.learn the problem solving method in simple and compound Interest problem sit helps the students to solve problem in real life situation. 2.prepare themselves for various competitive examinations. 3.crack challenging problems of simplification based on simple interest, compound Interest and compound amount within a few seconds with the help of short tricks.	6
2	Time and work - Important facts and formula	Students can 1.learn the problems solving techniques for aptitude problems 2.formulate the problem quantitatively and recall appropriate arithmetical methods to solve the problem. 3.learn and apply short tricks, tips and logical method on difficult problem soft topic like Time and Work	6
3	Time and distance - Important facts and formula	Students can 1.learn and apply short tricks, tips and logical method on difficult problems of topic like time and distance. 2.evaluate the various real life situations by resorting to analysis of key issues and factors 3.gain the thorough knowledge of preparing the competitive examinations conducted by TNPSC/UPSC/BSRB.	6
4	Chain Rule – Compound Proportion – Direct Proportion - Indirect Proportion	Students can 1.learn the problems solving techniques in Chain rule, Compound and Proportion, Direct and Indirect Proportion. 2.formulate the problem quantitatively and recall appropriate arithmetical methods to solve the problem. 3.to be benefitted by these concepts to crack competitive examinations.	6
5	Pipes and Cistern – Inlet – Outlet - Important facts and formula	Students can 1.learn and apply short tricks, tips and logical method on difficult problems of topic like Pipes and Cistern etc. 2.improve overall IQ and intelligent level. 3.apply the right approach and easiest technique to tackle Math problems.	6

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Objective Arithmetic	R.S. Aggarwal	2006(5)	S.Chand & Co Publication

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Quantitative Aptitude	S.P.Gupta & P.K. Gupta	2007(1)	Sultan Chand & Sons, New Delhi
2	Quantitative Aptitude for Competitive examinations	Abhijit Guha	Reprint 2005(3)	Tata McGraw-Hill Publishing Company Ltd


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SEMESTER V

Programme: B.Sc.,	Subject: Mathematics	
Course code: 19UMAC51	Course Title: Real Analysis	
Category: Core -7	Credits: 5	Hours: 8

Objectives:

1. To give a comprehensive idea about the continuity, connectedness and compactness
2. To have a good foundation in the concepts of abstract mathematics.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction of countable and uncountable sets - Holder's and Minkowski's inequalities. Metric spaces – Definitions and examples Bounded sets – Open balls– Open sets	Students can 1.explain the basic concept of countable and uncountable sets 2.demonstrate the definitions of theorem concerning metric spaces 3.determine if subsets of a metric space are open, closed, connected, bounded, totally bounded.	24
2	Subspaces- Interior of a set - Closed sets Closure – Limit point – Dense sets – completeness– definition and examples Cantor's intersection theorem and Baire's Category Theorem.	Students can 1.gain knowledge about closure, limit points and dense sets 2.demonstrate the understanding of limits and how they are used in metric space 3.explain the Cantor's intersection theorem and Baire's Theorem.	24
3	Continuity – Homeomorphism - Uniform continuity(Discontinuous functions on $\mathbb{R}$ are not included)	Students can 1.gain knowledge about the Limits of functions and continuity 2.distinguish the continuity and uniform continuity 3.understand the concept of homeomorphism in continuity	24
4	Connected – definition and examples – Connected subsets of $\mathbb{R}$ – connectedness and continuity – Intermediate value theorem	Students can 1.determine if a function on a metric space is discontinuous, continuous, or uniformly continuous. 2.explain the concepts of completeness and connectedness in metric spaces 3.understand the intermediate value theorem	24
5	Compactness – definition and examples – compact subsets of a real line $\mathbb{R}$ – Equivalent Characterization of compactness – Compactness and Continuity	Students can 1.gain knowledge about compactness 2.explain the concept of Equivalent characterization of compactness 3.distinguish Compactness and Continuity	24

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Modern Analysis	Dr.S. Arumugam, Isaac and Somasundaram	2019(1)	Yesdee Publication Pvt Ltd., Chennai

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Elements of Real Analysis	Shanti Narayanan, M.D. Rai Singhania	2007(8)	S.Chand and Company Ltd., New Delhi,
2	Methods of Real Analysis	Richard R.Goldberg	1970(2)	IBM Publishing, New Delhi
3	A first Course in Mathematical Analysis	D.Somasundaram and B Choudhary	2010(5)	Narosa Publishing House


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SEMESTER V

Programme: B.Sc.,	Subject: Mathematics	
Course code: 19UMAC52	Course Title: Mechanics	
Category: Core-8	Credits:5	Hours: 7

Objectives:

1. To understand the basic concept and principles of statics and dynamics.
2. To introduce the postulates governing static and dynamic system.
3. Learn to analyze the mechanism of physical problems.

Unit	Detailed Syllabus	Outcomes	Hours
1	Forces acting at a point: Forces acting at a point – types of forces – Triangle of forces – Polygon of forces – Lami’s theorem – Parallel Forces and moments – Resultant of two like parallel forces, unlike and unequal parallel forces – moment of a force – Varignon’s theorem of moments.	Students can 1.know about the forces and their moments 2.study the interaction of forces between solids in mechanical systems 3.solve the problems relating to the motion of projectile	21
2	Equilibrium of Strings and Chains: Equilibrium of strings and chains – Common catenary – Suspension bridge.	Students can 1.distinguish the resultant of two like unlike and unequal parallel forces. 2.recall the conditions of equilibrium of forces acting on a body 3.gain knowledge about projectiles and their path	21
3	Projectiles: Equation of Path – Maximum height – Time of flight – Range.	Students can 1.determine the motion on the surface of smooth inclined plane 2.find the equation of a path, maximum height and Time of flight 3.discuss Centre of mass and inertia tensor of mechanical systems	21
4	Simple Harmonic Motion : Simple harmonic motion (SHM) in a straight line – Geometrical representation – Composition of SHM’s of same period in the same line and along two perpendicular direction – SHM as a curve – Simple pendulum – Simple equivalent pendulum. The seconds pendulum.	Students can 1.discussgeometrical representation of simple harmonic 2.understand the concept of terminal speed, and use it in solving mechanics problems 3.distinguish the simple and second Pendulum	21
5	Motion under the action of Central Forces: Velocity and acceleration in Polar co-ordinates – Differential equation of Central Orbit – Pedal equation of Central Orbit.	Students can 1.explain the Composition of SHM’s same period in the same line and along two perpendicular direction 2.find the differential equation of central orbit 3.find the pedal equation of central orbit	21

Text Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	A text book on Dynamics	Venkataraman .M.K	2001(10)	Agastiar Publications, Trichy
2	Statics	Venkataraman .M.K.	2002(10)	Agastiar Publications

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Mechanics	Duraipandian .P, and Laxmi Duraipandian, Muthamizh Jayapragasam	2005(6)	S.Chand and Company, New Delhi
2	Mechanics	I.Rajeswari	2016(1)	Saras Publications Nagarcoil
3	Statics	Khanna.M.L.	2008	Pragati Pragasam Ltd., U.P


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SEMESTER V

Programme: B.Sc.,	Subject: Mathematics	
Course code:19UMAE51	Course Title: Fuzzy Sets and Logic	
Category: Major Elective I	Credits: 5	Hours: 7

Objectives:

1. To explain the fundamental concepts of fuzzy set.
2. To demonstrate the concept of α -cuts and its properties.

Unit	Detailed Syllabus	Outcomes	Hours
1	Fuzzy sets-Basic types-Additional properties of cuts-Representation of fuzzy sets-Extension principle for fuzzy sets-Types of operations- Fuzzy complements.	Students can 1.understand the basic concepts of fuzzy sets and crisp sets in brief 2.explain the properties of α -cuts and principle of fuzzy sets 3.learn about the characteristics and significance of paradigm shift.	21
2	Fuzzy numbers - Linguistic variables- arithmetic operations on intervals- arithmetic operations on fuzzy numbers	Students can 1.learn about linguistic variables using fuzzy numbers 2.able to know the arithmetic operations on intervals 3.compute the fuzzy number using the arithmetic operations	21
3	Fuzzy relation-crisp versus fuzzy relations – projections and cylindric extensions - Binary fuzzy relations on a single set- Fuzzy equivalence relations -Fuzzy compatibility relations -Fuzzy ordering relations.	Students can 1.able to know the relation of fuzzy set 2.explain the projections on fuzzy sets 3.explain the types of relations on fuzzy Sets	21
4	Fuzzy logic –Classical logic-An overview-multivalued logic-Fuzzy propositions - Fuzzy quantifiers- Linguistic Hedges-Inference from conditional fuzzy propositions- Inference from conditional and quantified propositions	Students can 1.able to know the fuzzy logic 2.gain the knowledge about fuzzy quantifiers 3.get the inference from conditional, quantified proposition	21
5	Applications - Application to civil engineering - computer engineering - Reliability theory – Robotics – Medicine – Economics - Fuzzy regressions – Interpersonal communications	Students can 1.understand the basic applications of fuzzy in engineering 2.able to the applications of fuzzy in medicine and economics 3.get insight into interpersonal communication as an application of fuzzy	21

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Fuzzy sets and Fuzzy Logic Theory Applications	George J. Klir and B. Yuan	2002(1)	Prentice Hall of India, New Delhi

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Fuzzy Mathematical Concepts	S. Nanda & N. R. Das	2014(3)	Narosa Publishing House Pvt. Ltd.,
2	Introduction to Fuzzy Sets and Fuzzy Logic	M. Ganesh	Reprint 2012(6)	PHI Learning Private Limited, New Delhi
3	Fuzzy matrix Theory and Applications	R. Meenakshi	2008	MJP Publishers, Chennai
4	Fuzzy set theory and its application	A.J.Zimmermann	Fourth Edition	Springer –International Edition


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SEMESTER V

Programme: B.Sc.,	Subject: Mathematics	
Course code:19UMAE52	Course Title: Discrete Mathematics	
Category: Major Elective I	Credits:5	Hours: 7

Objectives:

1. To introduce the concept of lattice.
2. To teach various types of lattices.
3. To cope-up with recent advancements in Boolean algebra and logic.

Unit	Detailed Syllabus	Outcome	Hours
1	Mathematical Logic –statements and notation, Connectives- Negation, conjunction, disjunction- statement Formula's and truth table- conditional and bi conditional-well defined formulas-Tautologies- Equivalence of formulas-Duality law –tautological Implications- Formulas with distinct truth tables.	Students can 1.understand the proposition and logical connectives 2.understand the notion of mathematical thinking 3.give mathematical proofs, and Algorithmic thinking	21
2	Normal forms-the theory of inference for the statement calculus- the predicate- the theory of inference for the predicate calculus.	Students can 1.explain the concept theory of inference 2.apply them in problem solving 3.study the normal forms	21
3	Algebraic structures - groups and monoids - simple properties - group codes.	Students can 1.explain the algebraic structure 2.study the properties of algebra 3.understand the group codes	21
4	Lattices and Boolean algebra –Lattices and posets- properties of lattices-special lattices Boolean algebra-gating networks-minimal sums of products.	Students can 1.formulate and interpret Boolean algebra 2.understand the Lattices and posets 3.explain the properties of lattices	21
5	Number system and codes-decimal, binary, octal, hexadecimal, conversion from one to another – binary addition, subtraction, multiplication and division-BCD- weighted excess time gray code.	Students can 1.understand Boolean algebra and gating networks 2.gain knowledge about codings 3.understand the relation between number system and codes	21

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Discrete Mathematical Structure with Applications to Computer Science	J.P.Trembly & R.Manohar	2003(1)	Tata McGraw Hill Publishing Company, New Delhi.

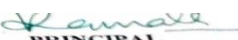
Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Discrete Mathematics	V.Sundaresan, K.S.Ganapathy Subramaniyan & K.Ganesan	2000(1)	Tata McGraw Hill Publishing Company, New Delhi
2	Discrete Mathematics	M.K.Venkataraman, N.Sridharan & N.ChandraSekaran	2000(2)	The National Publishing Company, Chennai
3	Discrete Mathematics	Balaji .G	2013(6)	Balaji Publishers, Chennai
4	Discrete Mathematics	Veerarajan .T	2009	Tata McGraw Hill Publishing Company, New Delhi


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SEMESTER V

Programme: B.Sc.,	Subject: Mathematics	
Course code:19UMAE53	Course Title: Astronomy	
Category: Major Elective-I	Credits:5	Hours: 7

Objectives:

1. To enable the students to understand the Astronomical aspects and about the laws governing the planet movements.
2. To achieve a good understanding of physical laws and principles.
3. Use Mathematics to performs calculations on earth and or space science problems.

Unit	Detailed Syllabus	Outcomes	Hours
1	Spherical Trigonometry: Spherical triangle – The fundamental formula of Spherical trigonometry, the sine, cosine, four parts and Napier formula (without proof) and simple problems.	Students can 1.recall the base concepts of trigonometry 2.understand the fundamental formulas of trigonometry 3.solve the simple problems in spherical Triangle	21
2	The celestial sphere-Celestial co-ordinates – Diurnal motion – Rising and setting of a star – sidereal time – circumpolar stars – Morning and evening stars – Twilight.	Students can 1.explain the celestial sphere and celestial co-ordinates 2.learn about the rising and setting of star and side real time 3.gain knowledge about morning, evening stars and twilight	21
3	Earth – length of a day – Refraction – Tangent formula – Cassini’s formula – Effects of refraction	Students can 1.explain the Refraction 2.understand tangent formula and Cassini’s formula 3.learn the Effects of refraction	21
4	Geocentric parallax – Effects – Heliocentric parallax – Effects	Students can 1.explain Geocentric parallax and its effects 2.explain Heliocentric parallax and its effects 3.understand Kepler’s law	21
5	Kepler’s laws – verification of Kepler’s laws – True anomaly, mean anomaly, Eccentric anomaly – Relation between them.	Students can 1.solve the problems by using kepler’s law 2.understand true anomaly, mean anomaly and Eccentric anomaly 3.understand the relation between True anomaly and mean anomaly	21

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Astronomy for degree classes	Kumaravelu .S and Susheela Kumaravelu	2002(9)	Rainbow Printers, Nagercoil

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Textbook on Spherical Astronomy	W.M.Smart	1977(6)	Cambridge University Press, Cambridge
2	Spherical Trigonometry	Daniel A. Murray	First Edition	Longmans, Green and Company, Mumbai


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SEMESTER V

Programme: B.Sc.,	Subject: Mathematics	
Course code: 19UMACEP51	Course Title: Mathematics for competitive Examinations and Project	
Category: Project	Credits: 6	Hours: 6

1. Project

Objectives:

1. To demonstrate an understanding of the foundations and history of Mathematics
2. To perform computations in higher mathematics

Outcomes:

Students can

1. have increased their confidence and ability in communication skills.(in writing and oral)
2. apply the relative notations in the respective areas and finding theresults.
3. analyse result with the existing results.

2. Mathematics for Competitive Examinations

Objectives

1. **To use Mathematical ideas to model real world problems.**
2. To communicate Mathematical ideas with others.
3. To utilize technology to address Mathematical ideas

Unit	Detailed Syllabus	Outcomes	Hours
1	Simple Interest – Meaning of Interest – Compound Amount & Compound interest	Students can 1. learn the problem solving method in simple and compound Interest problems it helps the students to solve problem in real life situation. 2. prepare themselves for various competitive examinations. 3.crack challenging problems of simplification based on simple interest, compound Interest and compound amount within a few seconds with the help of short tricks.	9
2	Time and work - Important facts and formula	Students can 1.learn the problems solving techniques for aptitude problems 2.formulate the problem quantitatively and recall appropriate arithmetical methods to solve the problem. 3.learn and apply short tricks ,tips and logical method on difficult problems of topic like time and work	9
3	Time and distance - Important facts and formula	Students can 1.learn and apply short tricks, tips and logical method on difficult problems of topic like time and distance. 2.evaluate the various real life situations by resorting to analysis of key issues and factors 3.gain the thorough knowledge of preparing the competitive examinations conducted by TNPSC/UPSC/BSRB.	9
4	Chain Rule – Compound Proportion – Direct Proportion - Indirect Proportion	Students can 1.learn the problems solving techniques in Chain rule, Compound and Proportion, Direct and Indirect Proportion. 2.formulate the problem quantitatively and recall appropriate arithmetical methods to solve the problem. 3.be benefitted by these concepts to crack competitive examinations.	9
5	Pipes and Cistern – Inlet – Outlet - Important facts and formula	Students can 1.learn and apply short tricks, tips and logical method on difficult problems of topic like Pipes and Cistern etc. 2. improve overall IQ and intelligent level. 3.apply the right approach and easiest technique to tackle Math problems.	9

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Objective Arithmetic	R.S. Aggarwal	2006(5)	S.Chand & Co Publication

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Quantitative Aptitude	S. P. Gupta & P.K. Gupta	2007(1)	Sultan Chand & Sons
2	Quantitative Aptitude for Competitive examinations	Abhijit Guha	2005(3)	Tata MCGraw- Hill Publishing


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SEMESTER VI

Programme: B.Sc.,	Subject: Mathematics	
Course code:19UMAC61	Course Title: Linear Algebra	
Category: Core -9	Credits:5	Hours: 6

Objectives:

1. To learn about vector spaces and matrices and theorems.
2. To cope-up with the homomorphisms through fundamental theorem.
3. To explain about rank and nullity.

Unit	Detailed Syllabus	Outcomes	Hours
1	Vector Spaces: Definition and examples - elementary properties – subspaces – linear transformation – fundamental theorem of homomorphism.	Students can 1.understand Vector spaces and find out the examples of Vector Spaces, subspaces and linear transformations. 2.explain the base concept of vector space and properties of vectors on the base. 3.explain some functions defined between vector spaces.	18
2	Span of a set – linear dependence and Independence-Properties – basis and dimension –Well defined- Theorems- Finite dimensional vector spaces.	Students can 1.determine the dimension of vector space 2.express vector spaces in different dimensions. 3.explain the concepts of base, dimension of vector space and dimension of vector.	18
3	Rank and nullity Theorem – matrix of a linear transformation - Inner product space: Definition and examples – orthogonality – orthogonal complement – Gram Schmidt orthogonalisation process.	Students can 1.find the matrix of linear transformation and define orthogonality in an inner product space and construct orthonormal basis. 2.find the length of a vector in some vector spaces and the angle between two vectors. 3.explain about orthogonal vectors and find the unit vector orthogonal to the given vector.	18
4	Matrices: Elementary transformation – inverse – rank – Cayley Hamilton theorem– Applications of Cayley Hamilton theorem. -	Students can 1.demonstrate the various characterization of non-singular matrices. 2.express the row and column space of matrix 3.find the rank and inverse of matrix	18
5	Eigen values and Eigen vectors – Properties and problems- test for consistency – solving system of linear equations.	Students can 1.find the matrix of linear transformation 2.find the characteristic of polynomial, Eigen values and eigenvectors in transformation matrix. 3.explain how the transformation matrix can be written in the form of diagonal matrix	18

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Modern Algebra	Dr.S. Arumugam, A.Thangapandi Isaac	Reprint 2007	Scitech Publications

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	A First course in Abstract Algebra	John B.Fraleigh	2002(7)	Pearson Publications
2	Modern Algebra	Surjeet singh, Qazi Zameeruddin	2006(8)	VIKAS Publishing house
3	Beginning Linear Algebra	Seymorelipschutz	2005	Tata McGraw-Hill Publishing Company Ltd
4	A Course in Abstract Algebra	Vijay.K.Khanna, S.K.Bhambri	2011(3)	VIKAS Publisng House Pvt Ltd.,


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SEMESTER VI

Programme: B.Sc.,	Subject: Mathematics	
Course Code: 19UMAC62	Course Title: Complex Analysis	
Category: Core -10	Credits: 5	Hours: 6

Objectives:

1. To assist the students in learning fundamental ideas and theorems about complex plane.
2. To learn about bilinear transformation
3. To explain about poles and residues through Taylor and Laurent's series expansions.

Unit	Detailed Syllabus	Outcomes	Hours
1	Functions of a complex variable – Limits – Theorems on limit – Continuous functions – Differentiability – The CR equations – Analytic functions – Harmonic functions – Conformal mapping	Students can 1. understand the significance of differentiability and analyticity of complex functions leading to Cauchy-Riemann equations 2. able to know the analytic functions 3. understand the conformal mapping	18
2	Elementary transformation – Bilinear transformations – cross ratio – Fixed points of bilinear transformation – Some special bilinear transformations – The mapping $\omega = z^2, \omega = z^n, \omega = e^z, w = \sin z, w = \cos z$	Students can 1. Gain knowledge about the elementary transformation and bilinear transformation 2. Compute the fixed points of bilinear transformation 3. analyze the properties of bilinear transformations	18
3	Definite integral – Cauchy's theorem – Cauchy's integral formula – Higher derivatives.	Students can 1. evaluate integrals along a path in the Complex plane 2. understand the concept of Cauchy's theorem 3. know about higher derivatives	18
4	Taylor's series – Laurent's series – Zeros of an analytic function - Singularities	Students can 1. learn Taylor and Laurent series expansions of analytic functions 2. identify the nature of singularities 3. determine the singularities of an analytic function	18
5	Residues – Cauchy's Residue theorem – Argument theorem – Rouché's theorem – Fundamental theorem of algebra – Evaluation of definite integrals	Students can 1. use the residue theorem to compute the line integral 2. evaluate the definite integrals 3. learn about Rouché's theorem	18

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Complex Analysis	Dr.S.Arumugam, A.Thangapandi Isaac & Dr. A.Somasundaram	Reprint 2003	Scitech Publications (India) Pvt. Ltd,

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Complex Analysis	P.Duraipandian, LaxmiDuraipandian and D. Muhilan	Reprint 2001(3)	Emerald Publishers, Chennai –8.
2	Complex Analysis	T.K.Manicavachagom Pillay, Dr.S.P.Rajagopalan, Dr.R.Sattanathan	2007(5)	S.Viswanthan (Printers and Publishers) Pvt. Ltd.


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SEMESTER VI

Programme: B.Sc.,	Subject: Mathematics	
Course Code: 19UMAC63	Course Title: Number Theory	
Category: Core -11	Credits: 5	Hours: 6

Objectives:

1. To understand the basic knowledge of numbers and its types.
2. To explain congruence and its properties.
3. To get in insight into divisibility using Fermat's theorem and generalized Fermat's theorem.
4. To learn about the characterization of prime numbers using Wilson's Theorem.

Unit	Detailed Syllabus	Outcomes	Hours
1	Peano's Axioms – Mathematical Induction – The Binomial Theorem – Early Number Theory.	Students can 1.learn about some important results in the theory of numbers including the binomial theorem 2.learn about number theoretic functions, modular arithmetic and their applications 3.learn and apply mathematical induction	18
2	Division Algorithm – GCD – Euclidean Algorithm – The Diophantine Equation $ax + by = c$.	Students can 1.get knowledge of division algorithm 2.familiarize with modular arithmetic and find primitive roots of prime and composite numbers 3.know about the Diophantine Equations	18
3	The Fundamental Theorem of Arithmetic – The Sieve of Eratosthenes – The Goldbach conjecture.	Students can 1.apply public crypto systems, in particular RSA 2.learn the properties of natural numbers 3.know about open problems in number theory, namely the Goldbach conjecture and twin- prime conjecture	18
4	Basis properties of congruences – Linear congruence and the Chinese Remainder Theorem.	Students can 1.get the knowledge of divisibility and congruence 2.solve the system of linear congruence 3.know about the remainder theorem and its applications	18
5	Fermat's Theorem – Wilson's Theorem – The Fermat – Kraitchik Factorization Method.	Students can 1.understand the methods to classify numbers as primitive roots and quadratic residues 2.learn about Chinese remainder theorem and its applications 3.learn Wilson's theorem and their Consequences	18

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Elementary Number Theory	David .M. Burton	2007(6)	Tata McGraw Hill Education Pvt. Ltd.

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Algebra Volume-II	K.Manicavachagom Pillay, T. Natarajan and K.S.Ganapathy	Reprint 2010	S.Viswanathan Publication, Chennai
2	Elements of Number Theory	Kumaravelu and Susheela Kumaravelu	2002(1)	Raja sankar Offset Printers
3	An Introduction to Theory of Numbers	Ivan Niven and H. Zuckerman	2009	Wiley eastern Edition


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SEMESTER VI

Programme: B.Sc.,	Subject: Mathematics	
Course Code: 19UMAC64	Course Title: Graph Theory	
Category: Core-12	Credits: 5	Hours: 6

Objectives:

1. To learn the basic concepts in Graph theory such as trees.
2. To familiarize the concepts on planar, Eulerian and Hamiltonian graphs.
3. To explain about its applications.

Unit	Detailed Syllabus	Outcomes	Hours
1	Finite and infinite graphs – degree – Isolated vertex, pendent vertex and null graph – walks, paths and cycles (Definite and examples only) sub graphs – connected and disconnected graph, Eulerian and Hamiltonian	Students can 1.familiarize with the history and development of graph theory 2.understand the definition and basics of graphs along with types and their examples 3.write precise and accurate mathematical definitions of basic concepts in graph theory	18
2	Trees and fundamental circuits – properties of Trees - distance and centre, binary tree, spanning tree, cut set and cut vertices – properties – connectivity.	Students can 1.understand and apply the various proof techniques in proving theorems in graph theory 2.construct the examples pertaining to the Basic theorems 3.understand the properties of trees and Circuits	18
3	Planar and dual graphs - different representation of planar graphs–Detection of planarity	Students can 1.understand the Planar and dual graphs 2.know the different representation of planar graphs 3.understand the notion of planarity in graph	18
4	Graph operations (unions, composition, product) matrix representation – incident, adjacency matrix – rank – cell set matrix – Relations, path matrix	Students can 1.relate graph theory to the real world problems 2.understand the basic concepts of graph operations 3.apply the theoretical knowledge and Independent mathematical thinking in creative investigation of questions in graph theory	18
5	Chromatic number – chromatic partitioning. Chromatic polynomial – domination – Covering (definition and examples only) - colouring – five color Theorem - Four Color problem.	Students can 1.write graph theoretic ideas in coherent and technically accurate manner 2.obtain a solid overview of the questions addressed in graph theory and will be exposed to emerge the areas of research 3.understand the basic concepts and fundamental results in coloring	18

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Invitation to Graph Theory	Dr. S.Arumugam & S.Ramachandran	2001(1)	SciTech Publications (India) Pvt. Ltd.

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Graph Theory	Harary	Reprint 2001	Narosa Publishing House, New Delhi
2	Elements of Graph Theory	S. K. Yadav	2010	Ane Books Private Ltd.,
3	Graph Theory	Kumaravelu .S & Susheela kumaravelu	1999(1)	Raja sankar Offset Printers


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SEMESTER VI

Programme: B.Sc.,	Subject: Mathematics	
Course Code:19UMAE61	Course Title: Combinatorial Mathematics	
Category: Major Elective II	Credits: 5	Hours: 6

Objectives:

1. To improve problem solving techniques.
2. To demonstrate the use of mathematical reasoning by justifying based on skill development.
3. To introduce the application of permutation and combination.

Unit	Detailed Syllabus	Outcomes	Hours
1	Selections and Binomial coefficients – Permutations – Ordered Selections – Unordered Selections – Miscellaneous Problems.	Students can 1.gain knowledge of problem solving techniques 2.understand the mathematical reasoning by justifying based on skill development 3.understand the ideas of permutations and combinations	18
2	Pairings Problems - Pairings within a set – Pairings between sets – An optimal assignment problem.	Students can 1.understand the pairing problems 2.understand the counting principles in pairings between the sets 3.understand how to apply combinatorial ideas to real life problems	18
3	Recurrence – Fibonacci – type relations. Using generating functions – Miscellaneous methods.	Students can 1.know about recurrence relation 2.know about Fibonacci relation 3.use generating functions to solve variety of combinatorial problems	18
4	The inclusion – Exclusion Principles – The Principle – Rook Polynomials	Students can 1.know about the inclusion principle 2.know about the exclusion principles 3.understand the rook polynomial and the number of ways to place non-attacking rooks	18
5	Block designs – Square Block designs	Students can 1.understand the concept of block designs 2.learn the square block design in detail and its various solving techniques	18

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	A first course in combinatorial Mathematics	Ian Andersen	1974(2)	Clarendon Press, Oxford

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Introduction to combinatorial Mathematics	C.L.Liu	1968(1)	Mc-Graw Hill Edition
2	Combinatorics Theory and Applications	V. Krishnamurthy	2005	East West Press


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SEMESTER VI

Programme: B.Sc.,	Subject: Mathematics	
Course Code: 19UMAE62	Course Title: Operations Research	
Category: Major Elective II	Credits: 5	Hours: 6

Objectives:

1. To introduce the various techniques of Operation Research.
2. To solve problems in Business management.
3. To understand different types of LLP.

Unit	Detailed Syllabus	Outcomes	Hours
1	Linear Programming Problem: Mathematical formulation of LPP – Graphical Method - Simplex Method	Students can 1.analyze and solve the linear programming models in real life situations 2.formulate the mathematical LP models and find their solutions 3.provide graphical solutions of linear programming problems with two variables, and illustrate the concept of convex set and extreme points.	18
2	Concept of Duality – Primal and Dual problems – Duality – Dual Simplex Method.	Students can 1.understand the theory of simplex method and its expansion 2.translate LPP using duality principle and find their solutions 3.know about the relationships between the primal and dual problems	18
3	Transportation Problem: North – West Corner Rule – Matrix Minima Method – Vogel’s Approximation Method – MODI Method – Unbalanced Transportation Problem.	Students can 1.recognize, solve and interpret transportation and assignment problems 2.learn about the applications of transportation and assignment problems 3.solve transportation problems using various methods	18
4	Assignment Problem: Hungarian Method – Balance Assignment Problem – Unbalance Assignment Problem.	Students can 1.learn about the OR approaching decision making 2.predict demand and supply in transaction of goods	18
5	Sequencing Problem: n jobs and 2 machines – n jobs and 3 machines – 2 jobs and m machines	Students can 1.solve sequencing problems of various types 2.choose the mathematical tools that are needed to solve sequencing problems	18

Text Book:

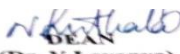
S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Operations Research	Kanti Swarup, P.K.Gupta and Manmohan	2006(12)	Sultan Chand & Sons

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Operations Research	Gupta P.K. and D. S. Hira		S. Chand and Company
2	Operations Research	J .Ranganath and A. S. Srikantappa	2017(1)	Yesdee Publishing House, Chennai
3	Operations Research	Hamdy A. Taha	2006(8)	Prentice – Hall of India


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SEMESTER VI

Programme: B.Sc.,	Subject: Mathematics	
Course Code: 19UMAE63	Course Title: Physical Cosmology	
Category: Major Elective-II	Credits: 5	Hours: 6

Objectives:

1. To enable the students to learn about the interesting facts of Moon, Sun and Planetary motion.
2. To achieve a good understanding of physical laws and principles.
3. To describe and explain the observed daily and long-term motion of objects (sun, moon, planets and stars)

Unit	Detailed Syllabus	Outcomes	Hours
1	Equation of time – Seasons – Conversion of time.	Students can 1.know the interesting facts about moon, the sun and the planets 2.learn in detail about the physical laws and principles 3.know about the movements of celestial Bodies	18
2	Moon – sidereal month, Lunation and relation between them – Phases of moon – Lunar Liberation - surface of moon – metonic cycle – Tides.	Students can 1.get detailed knowledge about moon and its phases 2.understand metonic cycles and tides 3.know about the lunar liberation	18
3	Eclipses – shadow cone – Minimum and maximum number of eclipses.	Students can 1.understand when and how the eclipses occur 2.know about the shadow cone 3.find the number of eclipses in a particular Period	18
4	Planetary Phenomena – Bode’s law – Elongation – Sidereal period, synodic period and the relation between them – Phases – Stationary points – solar system.	Students can 1.know about the Bode’s Law 2.understand the Sidereal period, Synodic period and their relations. 3.understand in detail about the solar system and its stationary points	18
5	Stellar Universe – A brief history of Astronomy. Astronomical instruments – Galaxies and constellations.	Students can 1.know in detail about the history of astronomy 2.know about the stellar universe galaxy and constellation 3.understand about the astronomical instruments and their usage	18

Text Book:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Astronomy	S. Kumaravelu and Susheela Kumaravelu	2002(1)	S. Kumaravelu, Muruga Bhavanam, Nagercoil.

Reference Books:

S. No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Text book on Spherical Astronomy	W.M.Smart	1977(6)	Cambridge University Press, Cambridge
2	Spherical Trigonometry	Daniel A. Murray	First Edition	Longmans ,Green and Company, Mumbai


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Reaccredited with “A” grade by NAAC
A branch of Sri Ramakrishna Tapovanam, Tirupparaithurai
Affiliated to Manonmaniam Sundaranar University, Tirunelveli
Degree: M.Sc; Subject: MATHEMATICS;
Programme Structure (2019-2021)

Sem	Part	Category	Course code	Course Title	Hours/week			Credits
					L	P	T	
1	III	Core – 1	19PMAC11	Group Theory	6	0	6	4
1	III	Core – 2	19PMAC12	Analysis	6	0	6	4
1	III	Core – 3	19PMAC13	Analytic Number Theory	6	0	6	4
1	III	Core – 4	19PMAC14	Ordinary Differential Equations	6	0	6	4
1	III	Core - 5	19PMAC15	Numerical Methods	6	0	6	4
Subtotal					30	0	30	20
2	III	Core – 6	19PMAC21	Rings and Ideals	5	0	5	4
2	III	Core – 7	19PMAC22	Advanced Analysis	5	0	5	4
2	III	Core – 8	19PMAC23	Classical Mechanics	5	0	5	4
2	III	Core – 9	19PMAC24	Differential Geometry	5	0	5	4
2	III	Core – 10	19PMAC25	Graph Theory	5	0	5	4
2	III	Major Elective 1	19PMAE21	Programming with C++	5	0	5	4
			19PMAE22	Discrete Mathematics				
			19PMAE23	Partial Differential Equations				
Subtotal					30	0	30	24
3	III	Core – 11	19PMAC31	Measure and Integration	6	0	6	4
3	III	Core – 12	19PMAC32	Topology	6	0	6	4
3	III	Core – 13	19PMAC33	Field Theory and Lattices	6	0	6	4
3	III	Core – 14	19PMAC34	Research Methodology and Mathematical Statistics	6	0	6	4
3	III	Major Elective 2	19PMAE31	Algebraic Number theory	6	0	6	4
			19PMAE32	Calculus of Variations and Integral Equations				
			19PMAE33	Formal Languages and Automata Theory				
Subtotal					30	0	30	20
4	III	Core – 15	19PMAC41	Functional Analysis	6	0	6	5
4	III	Core – 16	19PMAC42	Complex Analysis	6	0	6	5
4	III	Core – 17	19PMAC43	Operations Research	6	0	6	5
4	III	Major Elective 3	19PMAE41	Advanced Algebra	6	0	6	5
			19PMAE42	Advanced Topology				
			19PMAE43	Stochastic Processes				
4	III	Core – 18	19PMAPWV	Project	0	0	6	6
Subtotal					24	0	30	26
Total					114	0	120	90


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SEMESTER I

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC11	Course Title: Group Theory	
Category: Core I	Credits:4	Hours: 6

Outcome:

1. To know more concepts in algebra which helps them to develop thinking and improve mathematical ability.
2. To understand the basic algebraic structures prevailing in the set for numbers.
3. To familiarize Abelian groups

Units	Detailed Syllabus	Hours
1	Definition and Some examples of Groups, A counting Principle –Normal Subgroups and quotient groups- Homomorphisms. Section :2.1, 2.2, 2.5, 2.6, 2.7. Problems: Sec: 2.5 - 13 to 15 Sec 2.6: 1-6	18
2	Automorphisms-Cayley’s theorem –Solvable groups. Section: 2.8, 2.9 . Supplementary Problems: 10-17.	18
3	Permutation groups-Another Counting Principles. Section: 2.10, 2.11. Problems: Sec: 2.10 - 1 to 3, 7 & 10	18
4	Sylow’s Theorems Section: 2.12	18
5	Direct products-Finite abelian groups. Section:2.13,2.14.	18

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Topics in Algebra	I.N. Herstein,	Second Edition, 2004	John Wiley & Sons India Edition
2	Basic Algebra(volume 1)	Nathan Jacobson	1991	Hindustan Publishing Corporation(India), Delhi.
3	University Algebra	N.S.Gopalakrishnan	3 rd edition, 2015	New Age International publishers
4	A first course in Abstract Algebra	John B. fraleigh	7 th edition, 2014	Dorling Kindersley(India) Pvt. Ltd
5	Groups, Rings and Modules with Applications	M.R Adhikari, Avishek Adhikari	2 nd Edition, 2003.	Universities Press(India) Pvt. Ltd.

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Algebra	Thomas W.Hungerford	2009	Springer International Edition, New York
2	Applied Abstract Algebra	Rudolf Lidl, Gunter Pilz	2 nd Edition	Springer International Edition, New York


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SEMESTER I

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC12	Course Title: Analysis	
Category: Core 2	Credits:4	Hours: 6

Outcome:

1. To familiarize the concept of the construction of the real number system.
- 2.To explain about continuity and differentiability on the real line $\mathbb{R}$.
- 3.To acquire knowledge in uniform convergence and differentiation.

Units	Detailed Syllabus	Hours
1	Metric Spaces – Compact Sets – Perfect Sets – Cantor Sets – Connected Sets. Chapter 2 : Sec : 2.15 – 2.47. Exercise Problems : Chapter 2: 5-14,20	18
2	Convergence Sequences–Sub sequences–Cauchy Sequence–Lower and Upper limits–Some special sequences–Series–Series of non-negative terms– The number e . Chapter 3 : Sec : 3.1 – 3.32 Exercise Problems : Chapter 3: 1-8 .	18
3	Root test and Ratio test – Power Series – Summation by parts – Absolute Convergence – Addition and Multiplication of series- Rearrangements Chapter 3 : Sec : 3.33 – 3.51, 3.52 – 3.54 Exercise Problems : Chapter 3: 9,11-13	18
4	Continuity – Limits of functions – Continuous functions – Continuity and Compactness – Continuity and Connectedness – Discontinuous – Monotonic functions- Infinte limits and limits at infinity Chapter 4 : Sec : 4.1 – 4.31, 4.32 – 4.34 Exercise Problems: Chapter 4 : 1 – 5, 14, 15	18
5	Differentiation – Derivative of a real function – Mean Value Theorems – The continuity of derivatives – L’Hospital’s Rule – Derivatives of higher order – Taylor’s Theorem- Differentiation of vector valued functions and some examples Chapter 5: Sec: 5.1 – 5.15, 5.16 - 5.18. Exercise Problems: Chapter 5 : 1 – 5 and 12.	18

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Principles of Mathematical Analysis	Walter Rudin	Third Edition	McGraw Hill International Book Company
2	Real and complex Analysis	Walter Rudin	3 rd Edition, 1976	Tata McGraw hill publications, New Delhi
3	Mathematical Analysis	Tom M. Apostol	II Edition	Narosa Publishing House
4	Real Analysis	H.L. Royden	1988	Macmillan Publishing &co
5	Elements of Real Analysis	S.C.Malik	1980	Wiley Eastern Limited

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Methods of Real Analysis	Richard R.GoldBerg	1970	Oxford &IBH Publications
2	A Course of Mathematical Analysis	Shanthi Narayanan	20 th Edition	Sultan & Chand
3	Real Analysis	K.Vishwanathan Naik	1988	Emerald Edition


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SEMESTER I

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC13	Course Title: Analytic Number Theory	
Category: Core -3	Credits:4	Hours: 6

Outcome:

1. To provide an introduction to Number theory.
2. To understand some importance tools in number theory and study of distribution of primes.
3. To enable the students to know more about numbers.

Units	Detailed Syllabus	Hours
1	The fundamental Theorem of Arithmetic Chapter 1 Exercise Problems: Chapter 1 :1 – 11	18
2	Arithmetic functions Chapter 2: 2.1-2.8 Exercise problems: Chapter 2: 1 – 6.	18
3	Multiplicative functions and Dirichlet Multiplication- <u>Formal Power series</u> Chapter 2: 2.9-2.14. <u>2.15</u> Exercise problems: Chapter 2:21 – 23, 25, 26.	18
4	Averages of Arithmetical functions Chapter 3: 3.1 – 3.9 Exercise problems: Chapter 3: 1 – 4.	18
5	Partial sum of Dirichlet product- Chebyshev's functions – equivalent forms of Prime number theorem- <u>Shapiro's Tauberian Theorem</u> Chapter 3 :Sec : 3.10,3.11 Chapter 4 :Sec : 4.1 – 4.5, <u>4.6</u> Exercise problems: Chapter 4: 3-5,8-10.	18

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Introduction to Analytic Number Theory	Tom M. Apostol	Springer International Student Edition	Narosa Publishing House
2	An Introduction to the Theory of Numbers	Ivan Niven and H.Zuckerman	5 th edition	

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Elementary Number Theory	David M.Burton	2 nd Edition	Tata McGraw Hill Publishing Company, New Delhi.
2	Elements of Number Theory	S.Kumaravelu-Susheela Kumaravelu	1 st Edition, 2002	Raja Sankar Offset Printers, Sivakasi.


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SEMESTER I

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC14	Course Title: Ordinary Differential Equations	
Category: Core – 4	Credits:4	Hours: 6

Outcome:

1. To learn mathematical methods to solve higher order differential equations.
2. To understand the concept of power series solution, special function, existence and uniqueness of solutions of ODE's

Units	Detailed Syllabus	Hours
1	Second Order linear equations General solution of the Homogeneous equations – The use of a known solution to find another – The method of variation of parameters. Section : 14 – 16, 19 Exercise Problems: 14 – 16, 19(1-4)	18
2	Power series solutions: A review of power series solutions – Series solution of first order equations – Second order equations – Ordinary points. Section : 26 – 28 Exercise Problems: 26 – 28	18
3	Regular singular points – Legendre polynomials – Properties of Legendre polynomials. Section : 29, 30, Appendix B: Hermite Polynomials and its properties, 44, 45 Exercise Problems: 29, 30	18
4	Bessel functions – The Gamma functions – Properties of Bessel functions. Section : 46, 47 Exercise Problems: 46, 47	18
5	Linear systems : Homogeneous linear systems with constant coefficients – <u>Method of successive approximations</u> Section : 55, 56, 68 Exercise Problems: 55, 56, 68	18

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Differential Equations with application and historical notes	G.F. Simmons	Second Edition	Tata McGraw Hill Publishing Company, New Delhi.
2	An Introduction to Differential Equations	R.K Ghosh, K.C. Maity	7 th Edition, 2004.	New Central Book Agency (P) Ltd.
3	Text Book of Ordinary Differential Equations	S.G. Deo, V.Lakshmikantham, V.Raghavendra	2 nd Edition, 1997	Tata McGraw Hill Publishing Company, New Delhi.
4	Differential Equations and their Applications	Zafar Ahasan	2 nd Edition, 2004	Prentice Hall of India, New Delhi.
5	Differential Equations and its Applications	S. Narayanan and T.K.Manicavachagom Pillay.	9 th Edition Revised & Reprint 2001	S.Viswanathan (Printers & Publishers) Pvt. Ltd.

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	An Introduction to ordinary differential equation	E.A Coddington	2010	PHI learning Pvt.Lts., New Delhi
2	Differential Equations (Schaum's Outline series)	Richard Bronson	2004	Tata McGraw Hill Publishing Company, New Delhi.
3	Ordinary Differential equations – A First Course	D. Somasundaram	First Reprint, 2002	Narosa Publishing House


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SEMESTER I

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC15	Course Title: Numerical Methods	
Category: Core -5	Credits:4	Hours: 6

Outcome:

1. To develop Numerical Computational skills
2. To solve the problem involving differentiation and integration numerically
3. To interpolate and extrapolate given statistical data.

Units	Detailed Syllabus	Hours
1	Interpolation: Newton’s Interpolation Formula-Central difference Interpolation Lagrange’s Interpolation formula-Divided difference-Newton’s Divided differences formula-Inverse Interpolation-Hermit’s Interpolating Polynomial. Chapter 7: Section 7.1-7.7	18
2	Numerical differentiation –Derivatives using Newton’s forward, backward, central difference formulae. Chapter 8 : Section 8.1 to 8.3	18
3	Numerical Integration-Gaussian Quadrature formula-Numerical evaluation of double integrals. Chapter 8 : Section 8.5 to 8.7	18
4	Numerical solutions of ordinary differential equations-Taylor’s series method-Picard’s method-Euler’s method –Runge kutta method- Introduction to partial differential equations. Chapter 10: Section 10.1 to 10.4 &11.1	18
5	Predictor corrector method –Milnes method-Adams-Bashforth method- Simultaneous first order differential equations Chapter 10 : Section 10.5 to 10.7, 10.8	18

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Numerical Methods	S.Arumugam and others	2001	Scitech
2	Introductory Methods of Numerical Analysis	S.S.Sastry		Prentice Hall of India
3	Numerical Analysis	B.D.Gupta	1989	Konark Publishers ltd
4	Introduction to Numerical Analysis	F.B.Hilde Brand	II edition	Tata McGrawhill Co.,
5	Numerical Methods	B.S.Goel, S.K.Mittal	1991	Pragadi Prakashan

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Numerical Analysis	P.N.Chattarji	1992	Rajhans Prakashan Mandir
2	Numerical Methods	Balagurusamy. E.	2002	Tata Mcgraw Hill Publishing company,Lts.,India
3	Numerical Methods problems and solutions	M.K.Jain,S.R.K.Iyengar, R.K.Jain	1996	New age International Publishers.


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SEMESTER II

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC21	Course Title: Rings and Ideals	
Category: Core-6	Credits:4	Hours: 5

- Objectives:
1. The aim of the paper is to introduce some of the most fundamental algebraic structures like ideal and quotient rings.
 2. Basic knowledge in Euclidean rings and polynomial rings.

Units	Detailed Syllabus	Hours
1	Some Special classes of rings-Ring Homomorphisms – Ideals and Quotient rings–More ideals and Quotient rings – The field of Quotients of an integral domain. Text book 1: Sections: 3.2, 3.3 – 3.6.	15
2	Euclidean rings - A particular Euclidean ring. Text book 1: Sections: 3.7 and 3.8. Problems :1 to 3	15
3	Polynomial rings – Polynomials over rational field – Polynomial rings over commutative rings. Text book 1: Sections: 3.9 – 3.11 Supplementary Problems: 1 to 3	15
4	Certain radicals of a ring – Jacobson radical of a ring – Semi simple ring – nil radical – Primary ring. Text book 2: Chapter 8: Definition 8.1 – Theorem 8.15.	15
5	Quasi regular – J-semi simple – Direct sum of rings. Text book 2: Chapter 8: Theorem 8.16 – Theorem 8.18 and Chapter 10.	15

Text Books:

S. No	Title of the Book	Author	Edition, Year	Publication
1	Topics in Algebra	I.N. Herstein	Second Edition, 2004	Wiley Student edition.
2	A First Course in Rings and Ideals	David M. Burton, Addison	I, 1970	Wesley Publishing Company.

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Basic Algebra(volume1)	Nathan Jacobson	I, 1991	Hindustan Publishing Corporation (India), Delhi.
2	University Algebra	N. S. Gopalakrishnan	3 rd edition, 2015	New Age International publishers
3	A Text Book of Modern Abstract Algebra	Shanthi Narayan	4 th Edition Reprint, 1969	S. Chand & Co
4	Groups, Rings and Modules with Applications	M.R Adhikari, Avishek Adhikari	2 nd Edition, 2003.	Universities Press(India) Pvt. Ltd.

- Outcomes:
- Upon the completion of Rings and Ideals, the students will be able to
1. Understand the statement and proof of the division algorithm for polynomials and be able to apply polynomial long division in the ring $\mathbb{Q}[x]$.
 2. Understand the meaning of the least common multiple of two polynomials the proof of its uniqueness and able to compute least common multiple in the polynomial ring $\mathbb{Q}[x]$.


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SEMESTER II

Programme: M.Sc.,	Subject: Mathematics	
Course code:19PMAC22	Course Title: Advanced Analysis	
Category: Core-7	Credits:4	Hours: 5

Objectives:

1. To enable the students to have a good foundation in all the concepts in Sequences and series.
- 2.To solve the problem involving differentiation and integration.

Units	Detailed Syllabus	Hours
1	Definition and Properties of Integral – Integration and Differentiation. Chapter 6 : Sec : 6.1 – 6.22. Exercise Problems: Chapter 6 : 1 – 5,6, 10,11,12 – 14.	15
2	Integration of vector valued functions – Rectifiable arcs, Sequence and Series of functions: Discussion of main problem – Uniform Convergence – Uniform Convergence and Continuity. Chapter 6 : Sec : 6.23 – 6.27 & Chapter 7 : Sec : 7.1 – 7.15. Exercise Problems: Chapter 6 : 15 – 17 & Chapter 7 : 1 4,6,and7 .	15
3	Uniform Convergence and Integration – Uniform Convergence and Differentiation Equicontinuous families of functions. Chapter 7: Sec: 7.16 – 7.25. Exercise Problems: Chapter 7 : 20 – 24.	15
4	The Stone Weierstrass Theorem and Power Series Chapter 7 : Sec : 7.26 to 7.33 Chapter 8: Sec: 8.1 to 8.5, 8.6, and 8.7. Exercise Problems: Chapter 8 : 1 – 5.	15
5	The algebraic completeness of the complex field – Fourier Series – The Gamma function. Chapter 8: Sec: 8.08 – 8.22. Exercise Problems: Chapter 8 : 13,14,15.	15

Text Books:

S. No	Title of the Book	Author	Edition, Year	Publication
1	Principles of Mathematical Analysis	Walter Rudin	Third Edition, 1976	McGraw Hill International Book Company

Reference Books:

S. No	Title of the Book	Author	Edition, Year	Publication
1	Methods of Real Analysis	Richard R. GoldBerg	I, 1970	Oxford &IBH Publications
2	Real Analysis	K. Vishwanathan Naik	I, 1988	Emerald Edition
3	Mathematical Analysis	Tom M. Apostol	II Edition. 2002	Narosa Publishing House
4	Real Analysis	H.L. Royden	I, 1988	Macmillan Publishing &co
5	Elements of Real Analysis	S. C. Malik	I, 1980	Wiley Eastern Limited

Outcomes:

Upon the completion of Advanced Analysis, the students will be able to

1. Integrate functions of a real variable in the sense of Riemann Stieltje's
2. Classify sequences of functions which are pointwise convergent, uniform convergent, etc.,


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SEMESTER II

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC23	Course Title: Classical Mechanics	
Category: Core-8	Credits:4	Hours: 5

Objectives:

1. To understand the basic concepts of Hamilton's principles .
2. To enable the students to solve the problems in statics and dynamics.

Units	Detailed Syllabus	Hours
1	Mechanics of particle – Mechanics of a system of particles, Constraints. Chapter 1: Sec : 1, 2, 3. Problems : 2, 4, 5.	15
2	D'Alembert's principle and Lagrange's Equations – Velocity dependent potentials and dissipation functions – Simple applications of Lagrangian formulation. Chapter 1: Sec : 4, 5, 6. Problems : 11, 13, 16, 17, 18.	15
3	Hamilton's Principle – Some techniques of the calculus of variation – Derivation of Lagrange's equations from Hamilton's principle – Extension of Hamilton's principle to non-holonomic systems – Conservation theorems and symmetry properties. Chapter 2: Sec: 1 – 4, 6. Problems : 1, 2, 3, 8, 9, 11, 15.	15
4	Reduction to the equivalent one-body problem – The equations of motion and first Integrals – The equivalent on dimensional problem and classification of orbits – The Virial theorem. Chapter 3: Section 1-4, Problems: 2-4.	15
5	The differential equation for the orbit and integrable power law potentials – The Kepler Problem: Inverse square law of force – The motion in time in the Kepler problem – The Laplace – Runge – Lenz vector. Chapter 3: Sec: 5, 7-9.	15

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Classical Mechanics	H. Goldstein	7 th Reprint, 1998	Addison Wesley India Edition

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Classical Mechanics	C. R. Mondal	II, 2002	Prentise Hall of India.Pvt.Ltd,New Delhi
2	Classical Mechanics	K. N. Srinivasa Rao	I, 2003	Universities Press(India) Pvt.Ltd
3	Generalised Motion of a Rigid Body	Naveen Kumar	I, 2004	Narosa Publishing House
4	Classical Mechanics	J. C.Upadhyaya	III, Reprint 2003	Himalaya Publishing House

Outcomes:

Upon the completion of Classical Mechanics, the students will be able to

1. Define and understand basic mechanical concepts related to discrete and continuous mechanical systems.
2. Describe and understand the motion of a mechanical system using Lagrange-Hamiltonian formulation.


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SEMESTER II

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC24	Course Title: Differential Geometry	
Category: Core – 9	Credits: 4	Hours: 5

Objectives:

1. Gained the knowledge in the theory of space curves, geodesics.
2. Understand the application of Differential Geometry in theory of space curves and family of curves

Units	Detailed Syllabus	Hours
1	The Theory of Space Curves –Definitions, Arc length – Tangent – Normal and Binormal – Curvature and Torsion. Chapter 1 : Sec : 1.1 – 1.7. Problems : Chapter 1 : Miscellaneous Exercise I : 1 – 3, 4, 5.	15
2	Contact between curves and surfaces – Tangent Surface – Involutives and Evolutes – Helices. Chapter 1 : Sec : 1.10 ,1.13.1.18. Problems : Chapter 1 : Miscellaneous Exercise I : 8 – 12.	15
3	Definition of a surface – Curves on a surface – Surfaces of revolution – Helicoids – Metric – Direction Coefficients. Chapter 2 : Sec : 2.1 – 2.10 Problems : Chapter 2 : Miscellaneous Exercise II : 1 – 4.	15
4	Families of curves – Geodesics, Canonical geodesic equation, Normal Property of geodesics – Geodesic Parallels. Chapter 2 : Sec : 2.11, 2.10 – 2.12, 2.14. Problems : Chapter 2 : Miscellaneous Exercise II : 6, 7, 8.	15
5	Geodesic Curvature, The Second Fundamental form – Principal Curvature – Lines of Curvature Chapter 2:Sec : 2.15,Chapter 3:Sec:3.1–3.3 Problems: Miscellaneous Exercise III : 1 – 5.	15

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Differential Geometry – A first Course	D. Somasundaram	5 th Reprint,, 2012	Narosa Publication

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	An Introduction to Differential Geometry	T. J. Willmore	23 rd Impression , 2008	Oxford University Press, (17 th Impression), New Delhi,
2	Differential Geometry	P. K. Gupta & G.S. Malik	I, 1976	Pragadhi Prakashans
3	Differential Geometry	N. C. Jain, M.C. Goel	I, 2003	Indus Valley Publication

Outcomes:

Upon the completion of Differential Geometry, the students will be able to

1. Define the equivalence of two curves and analyze the equivalence of two curves.
2. Define surfaces and their properties and parameterization of surfaces.


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SEMESTER II

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC25	Course Title: Graph Theory	
Category: Core-10	Credits: 4	Hours: 5

Objectives:

1. To introduce the concepts of edge and vertex coloring.
2. To understand the concept of perfect matching.

Units	Detailed Syllabus	Hours
1	Connectives – Blocks – Trees – Applications. Chapter 3: Sec : 3.1 – 3.4 Chapter 4: Sec: 4 .1 - 4.6, 4.7.1 , 4.7.2	15
2	Independent Sets and Matching. Chapter 5: Sec: 5.1 – 5.6	15
3	Eulerian and Hamiltonian Graphs. Chapter 6: Sec: 6.1 – 6.3, 6.5 & 6.6	15
4	Coloring – Vertex Coloring. Chapter 7: Sec : 7.1 – 7.4	15
5	Edge coloring and Chromatic Polynomial. Chapter 7: Sec : 7.6 & 7.9.	15

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	A Text book of Graph Theory	R. Balakrishnan, K. Ranganathan	2 nd Edition, 2012	Springer Verlag Publications

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Graph Theory with applications	H.J.A. Bondy and Murthy	I, 1976	The MacMillan Press Limited
2	Graph Theory	Frank Harary	I, 1969	Narosa Publishing house
3	Algebra, Graph Theory and their applications	T. Tamizh Chelvam, S. Somasundaram and R.Kala	I, 2010	Narosa Publishing House
4	Graph Theory and its Applications	R. Balakrishna ,R. J. Wilson, G. Sethuraman	I, 2004	Narosa Publishing House

Outcomes

Upon the completion of Graph Theory, the students will be able to

1. Model and solve real world problems using graphs and trees both quantitatively and qualitatively.
2. Understand the basic concepts and fundamental results in matching, coloring.


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SEMESTER II

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAE21	Course Title: Programming with C++	
Category: Major Elective 1	Credits:4	Hours: 5

Outcome:

1. To introduce the concepts of C++.
2. To understand the concept of Debugging.

Units	Detailed Syllabus	Hours
1	Beginning with C++, Tokens, Expressions and Control structures. Chapter : 2 & 3 (including Debugging and Program Exercises).	15
2	Functions in C++, Classes and Objects. Chapter : 4 & 5 (including Debugging and Program Exercises).	15
3	Constructors and Destructors – Operator Over loading – Type Conversions. Chapter : 6 & 7 (including Debugging and Program Exercises).	15
4	Inheritance – Extending Classes – Pointers – Virtual Functions – Polymorphisms. Chapter : 8 & 9 (including Debugging and Program Exercises).	15
5	Managing console I/O operations – Working with files. Chapter : 10 & 11 (including Debugging and Program Exercises).	15

Text Book:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Object Oriented Programming with C++	E. Balagurusamy	(Fourth Edition)	TMH Publications

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Data Structures with C++	John, R Hubbard	2004	Tata McGraw hill


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SEMESTER II

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAE22	Course Title: Discrete Mathematics	
Category: Major Elective 1	Credits:4	Hours: 5

Outcome:

1. To study the concept of coding and cyclic codes
2. To understand the concept of switching circuits .
3. To familiarize about application of switching circuits

Units	Detailed Syllabus	Hours
1	Propositional Logic - Propositional equivalence – Predicates and quantifiers- <u>Normal forms</u> Sections: 1.1 – 1.3 & <u>1.7</u> Problems :Section: 1.1 (1-38), Section: 1.2(1-35) and Section: 1.3(1-34)	15
2	The Basics of counting – The Pigeonhole principle – Permutation and Combination – Generalized permutation and combination. Sections: 5.1,5.2, <u>5.3</u> and 5.5 Problems: Section : 5.1 (1-40), Section:5.2(1-22) and Section: 5.5(1-9)	15
3	Relation and their properties – n-ary relations and their applications – representing relations – closures of relations – Equivalence Relation. Sections: 7.1-7.5 except Warshall’s algorithm Problems: Section: 7.1(All exercises problems), Section:7.2(1-27), Section:7.3(1-22) and Section:7.4(1-22).	15
4	Boolean functions – Representing Boolean functions. Sections: 10.1 and 10.2. Problems: All exercise problems.	15
5	Logic Gates – Minimization. Sections: 10.3 and 10.4. Problems: All exercise Problems.	15

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Applied Abstract Algebra	Rudolf Lidl and Gunter Pilz	2 nd Edition	Springer Publications
2	Discrete Mathematics & its Applications	Kennth.H.Rosen	6 th Edition	Web/MC Graw Hill Publications
3	Discrete Mathematics with Graph Theory	Edgar .G. Goodaire, Michael M. Parmenter	2003	Prentice Hall of India
4	Discrete Mathematics	Richard Johnsonbaugh	2003	Pearson Education Pvt. Limited
5	Discrete Mathematical Structures	R.M.Somasundaram	2003	Prentice Hall of India

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Discrete Mathematics	Swapan Kumar Chakraborty & Bikash ~~Kanti Sarkar~~	First Edition, 2011	Oxford University Press,New Delhi.
2	Discrete Mathematical Structures with Applications to Computer Science	J.P.Tremblay R.manohar,	1997	McGraw Hill Education Pvt Ltd
3	Discrete Mathematics and its Applications with Combinatorics and Graph Theory	Kenneth H Rosen	2011	McGraw Hill Education Pvt Ltd


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SEMESTER II

Programme: M.Sc.,	Subject: Mathematics	
Course code:19PMAE23	Course Title: Partial Differential Equations	
Category: Major Elective 1	Credits:4	Hours: 5

Outcome:

1. To learn mathematical methods to solve first and second order differential equations.
- 2.To understand the various methods such as Cauchy’s method ,Charpit’s Method

Units	Detailed Syllabus	Hours
1	Methods of solutions $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$ Orthogonal Trajectories of a system of curves on a surface–Orthogonal Trajectories of a System of Curves on a Surface - Pfaffian Differential Forms and equations – Solution of a Pfaffian DE in 3 variables. Chapter 1 : Sec : 3,4,5, 6. (all problems).	15
2	Partial DE – Origins of First Order PDE – Cauchy’s Problem for First – order Equations – Linear equations of First Order – Integral surfaces passing through a given curve – Surfaces orthogonal to a given system of surfaces. Chapter 2 : Sec : 1, 2,3, 4, 5, 6. (all problems).	15
3	Cauchy’s method of characteristics – Compatible systems of First Order equations – Charpit’s Method – Special types of First Order equations. Chapter 2 : Sec : 8, 9, 10, 11. (all problems).	15
4	The Origin of Second Order equations – Second Order equations in Physics – Linear PDE with constant coefficients. Chapter 3 : Sec : 1, 2, 4. (all problems).	15
5	Characteristics of equations in 3 variables - Separation of variables. Chapter 3 : Sec : 7, 9. (all problems).Miscellaneous Problems are not included.	15

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Elements of Partial Differential Equations	I.N. Sneddon	1983	McGraw Hill, New Delhi
2	An Introduction to Partial Differential Equations	Michael Renardy, Robert C. Rogess	Second Edition	Springer International Edition
3	Differential Equations with Applications and Historical Notes	George F.Simmons	Second edition	Tata McGraw-Hill edition
4	Differential Equations and its Applications	S. Narayanan and T.K.Manicavachagom Pillay.	9 th Edition Revised& Reprint 2001	S.Viswanathan (Printers&Publishers) Pvt. Ltd.

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Differential Equations & their applications	Zafar Ahsan	2 nd Edition	prentice-Hall of India,New Delhi.


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SEMESTER III

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC31	Course Title: Measure and Integration	
Category: Core – 11	Credits: 4	Hours: 6

Objectives:

1. To gain the knowledge of measure spaces and measure interruption
2. To understand the concept of lebesgue measure, lebesgue integration and signed measure
3. To gain about Lebesgue theory and general measure spaces and their properties and construction.

Unit	Detailed Syllabus	Outcomes	Hours
1	Lebesgue Measure – Lebesgue Outer Measure-The σ - Algebra of Lebesgue Measurable sets-Outer and Inner Approximation of Lebesgue Measurable sets - Countable Additivity, Continuity and the Borel – Cantelli Lemma. Chapter 2: Sec 2.1 – 2.5 Problems: Chapter 2: 1 – 12,17	Students can 1.clarify the concepts of Lebesgue Measure and outer measure 2.use the concepts of measurable set and Borel Lemma. 3.state and explain the Cantelli Lemma.	18
2	Lebesgue Measurable functions – Sums, Products and Compositions. Sequential point wise Limits and Simple Approximation – Littlewood’s Three Principles, Egoroff’s Theorem and Lusin’s Theorem. Chapter 3: Sec 3.1-3.3 Problems: Chapter 3: 1– 3	Students can 1.explicate Lebesgue Measurable functions 2.explain the concepts of sequential pointwise limit 3.apply the theorems of Littlewood’s Three Principles, Egoroff’s Theorem and Lusin’s Theorem.	18
3	Lebesgue Integration - The Riemann Integral - The Lebesgue Integral of a bounded Measurable function over a set of finite Measure - The Lebesgue Integral of a Measurable non -negative function. Chapter 4: Sec 4.1 – 4.3	Students can 1.describe the Lebesgue Integration 2.state the Riemann Integral 3.explain the concept of Lebesgue integral of a measurable non-negative function.	18
4	The general Lebesgue Integral – Countable Additivity and Continuity of Integration. Differentiation and Integration – Continuity of monotone functions – Differentiability of monotone function: Lebesgue’s theorem – Functions of bounded variations: Jordan’s theorem Chapter 4: Sec 4.4 & 4.5 Chapter 6: Sec 6.1 -6.3	Students can 1.describe the general Lebesgue integral 2.explain the differentiability of Monotone functions 3.state the Jordan’s theorem	18
5	Absolutely continuous functions- Measure and Integration-Measure and measurable sets- signed measures - The Hahn and Jordan Decompositions - The Caratheodory measure induced by an outer measure-The construction of outer measure. Chapter 6: Sec 6.4 Chapter 17: Sec 17.1-17.4	Students can 1.apply the Hahn and Jordan Decompositions. 2.describe the signed measure 3.state the construction of outer Measure	18

Text Book:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Real Analysis	H. L. Royden, P. M. Fitzpatrick	2013(4)	PHI Learning Private Ltd, Delhi – 110092

Reference Books:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Measure Theory and Integration	G. De Barra	2006(2)	New Age International Publications
2	Measure and Integration	Dr. A. Nagarajan	2016(1)	CHAROO Publications, Tuticorin


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SEMESTER III

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC32	Course Title: Topology	
Category: Core – 12	Credits: 4	Hours: 6

Objectives:

1. To gain the knowledge of constructing spaces by giving and to prove that in certain case, that the result is homeomorphic to standard spaces.
2. To distinguish space by means of Simple Topological invariants
3. To gain knowledge about Topological Spaces and the theories based on these spaces

Unit	Detailed Syllabus	Outcomes	Hours
1	Types of Topological Spaces–Basis for a Topology – The order topology – The product topology on $X \times Y$ - The Subspace Topology - Closed sets and limit points – Continuous functions. Chap:2, Sec : 12 to 18 Problem:Chap:2,Sec 13 (1&4)	Students can 1.understand the basis of topology. 2.demonstrate the understanding of the concepts of product topology and subspace topology. 3.construct the subspace topology which is defined on subsets of the topological space by using the topology of a given topological space.	18
2	The Product Topology – The metric Topology – Connected spaces – Connected subspaces of the real line – Components and Local Connectedness Chap:2,Sec:19,20 Chap:3, Sec:23 to 25 Problem:Chap:2,Sec 19 (1 to 3)	Students can 1.understand the Product topology. 2.use the set of functions which are defined on a same set, constructs the weak topology on the domain of these functions. 3.compare the box and product Topologies	18
3	Compact spaces – Compact subspaces of the real line – Limit point Compactness Chap:3,Sec 26 to 28 Problem:Chap:3, Sec 26 (3,6)	Students can 1.Gain the knowledge about compact Space 2.learn the uniform continuous. 3.understand the concept of limit point compact.	18
4	Countability axioms – The separation axioms – Normal spaces – The Uryshon’s lemma Chap:4,Sec: 30 to 33 Problem:Chap:4, Sec 30 (2&3)	Students can 1.illustrate the concepts of separation axioms. 2.understand the separation axioms in different spaces. 3.understand the concept of normal spaces	18
5	Completely regular – The Urysohn metrization Theorem – Tietz Extension Theorem. Chap:4,Sec: 33 to 35 Problem: Chap:4, Sec 34 (1 to 3)	Students can 1.understand Urysohn metrization Theorem 2.gain the knowledge of Tietz Extension Theorem 3.understand the concept of completely regular.	18

Text Book:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Topology	James R Munkres	2002(2)	Prentice Hall of India Pvt. Ltd, New Delhi 110001

Reference Books:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Introduction to General Topology	K.D. Joshi Willey	1986(1)	Eastern Limited
2	Topology	K. Chandrasekara Rao	2009(1)	Narosa Publishing House, New Delhi


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SEMESTER III

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC33	Course Title: Field Theory and Lattices	
Category: Core – 13	Credits: 4	Hours: 6

Objectives:

1. To know the most fundamental algebraic structures like inner product space, Determinants, etc.
2. To gain the knowledge about the notion of Dual Spaces and the algebra of Linear Transformations.

Unit	Detailed Syllabus	Outcomes	Hours
1	Extension Fields: Extension fields Chapter: 5, Section: 5.1 (Text Book: 1)	Students can 1.solve polynomial equations using formulas for roots 2.test whether a polynomial is irreducible in Finite Field (Galois Fields) 3.know about Wedderburns theorem on finite division rings.	18
2	Roots of polynomials: roots of polynomial-More about roots Chapter: 5, Section: 5.3, 5.5 (Text Book: 1)	Students can 1.understand the equations which can be solved using radicals and using the concepts of a Galois group 2.understand and obtain the roots of a polynomial equation if the same has (or can be reduced to) degree less than five. 3.gain the ideas in working with finite fields	18
3	Elements of Galois theory: Elements of Galois theory Chapter: 5, Section: 5.6 (Text Book: 1)	Students can 1.apply the concept of a field extension to various mathematical problems including geometric constructions and perfect division of a circle into n parts 2.work with mathematical problems that involve in polynomial equations. 3.understand the Module theory as linear algebra over general rings.	18
4	Lattices: Partially ordered sets-Lattices-Modular lattices Chapter :7, Section: 1-3 (Text Book:2)	Students can 1.learn the theory of modules over PID and its application to Jordan and rational canonical forms. 2.know the Decomposition theory for lattices with ascending chain condition and Independence Complemented modular lattices. 3.understand the concept of Boolean algebras.	18
5	Decomposition theory for lattices with ascending chain condition-Independence-Complemented modular lattices-Boolean algebras. Chapter :7, Section: 4-8 (Text Book: 2)	Students can 1.work with problems in lattices. 2.identify the algebraic structures, satisfying A.C.C and D.C.C 3.find the extension fields for various polynomials.	18

Text Books:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Topics in Algebra	I. N. Herstein	2005(2)	Wiley Eastern Limited
2	Lectures in Abstract Algebra	Nathan Jacobson	1964(1)	D.Van Nostrand company.

Reference Books:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	A course in Abstract Algebra	Vijay K. Khanna, S.K. Bhambri	1998(2)	Vikas Publishing House – New Delhi.
2	Fields and Rings	Kaplemsky, Irving	1972(2)	University of Chicago , Chicago
3	Commutative Algebra	N. S. Gopalakrishnan	1971(2)	Prentice Hall of India


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SEMESTER III

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC34	Course Title: Research Methodology and Mathematical Statistics	
Category: core – 14	Credits: 4	Hours: 6

Objectives:

1. To train and participating in active research activities for their academic and professional levels.
2. To create a novel ideas and simple technique useful to society(R/D)
3. To acquire background knowledge in research publication and thesis writing.

Unit	Detailed Syllabus	Outcomes	Hours
1	Research Project: Research Project– Difference between a dissertation and a thesis –Basic requirements of a research degree– Writing a proposal–Ethical Considerations. Chapter5: Sec: 5.1, 5.2, 5.3, 5.6, 5.13 in Text Book 1.	Students can 1.acquire the fundamental understanding of research project 2.understand the difference between dissertation and thesis 3.write a proposal and basic requirements of research degree	18
2	Components of a Research Project: Different components of a research project – Literature review–Methodology– Results/data–Conclusions–Bibliography– Appendices. Chapter6: Sections: 6.1 - 6.6, 6.7, 6.8.1, 6.9.1, 6.11,6.12, 6.13 in Text Book 1.	Students can 1.obtain the fundamental understanding of components of research project and literature review 2.establish methodology, results and data 3.write bibliography and appendices	18
3	Some Special Distributions: The Gamma and Chi–Square distribution–The normal distribution. Chapter3: Sections: 3.3, 3.4 in Text Book 2. Exercise Problems: Chapter3:3.28 – 3.33, 3.40– 3.46.	Students can 1.simplify problems in Gamma and Chi distribution 2.solve the problems in square distribution. 3.illustrate the problems in normal Distribution	18
4	Sampling Theory: Transformation of variables–t &F distributions. Chapter4: Sections: 4.1– 4.4 in Text Book 2. Exercise Problems: Chapter4:4.1 – 4.8, 4.14–4.17, 4.20 – 4.25, 4.34 – 4.41.	Students can 1.explain the sampling theory 2. solve problems in t-distribution. 3.Illustrate the problems in F Distribution	18
5	Random variables: The MGF technique – Distributions of $\bar{X}$ and $\frac{\sum x^2}{\sigma^2}$ - Expectations of functions of random variables –The Central Limit Theorem. Chapter4: Sections: 4.7– 4.9 in Book 2. Chapter5: Sec5.4 in Text Book 2. Exercise Problems: Chapter4: 4.68 – 4.74, 4.83 – 4.93. Exercise Problems: Chapter5: 5.20 – 5.22, 5.25– 5.27.	Students can 1.explain the random variables 2.work on expectations of functions of random variable 3.state the central limit theorem	18

Text Books:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Writing up your University Assignments and Research Projects– A Practical hand book	Neil Murray and Geraldine Hughes	2008	McGraw Hill Open University Press
2	Introduction to Mathematical Statistics	Robert V.Hogg and Allen T. Craig	2005(4)	Pearson Education Asia

Reference Books:

S.No.	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Research Methodology	C.R.Kothari	2 nd revised methods and techniques edition	New Age International Publications, New Delhi
2	Fundamentals of Mathematics Statistics	S. C. Gupta, V. K. Kapoor	2002(11)	Sultan chand& sons Publishers, New Delhi
3	An Introduction to Probability Theory and its Applications	William Feller	1966 (2)	A Wiley Publication in Mathematical Statistics.


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SEMESTER III

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAE31	Course Title: Algebraic Number Theory	
Category: Major Elective 2	Credits:4	Hours: 6

Objectives:

1. To acquire knowledge about recent developments in Algebra have its impact on Number Theory and Number Theory too has its own contribution to the development of algebra.
2. To understand and appreciate the role played by Algebra in Number Theory.
3. To gain knowledge about various types of numbers such as algebraic Numbers, Pythagorean triples and representation of number as sum of positive squares.

Unit	Detailed Syllabus	Outcomes	Hours
1	Diophantine equations: Diophantine equations – The equation $ax+by=c$ – Positive solutions – Other linear equations.	Students can 1.study the concept (definition and significance) of Diophantine equations 2.find the positive solutions 3.find the solutions of other linear equations.	18
2	Some special equations: The equation $x^2+y^2=z^2$ – The equation $x^4+y^4=z^2$.The equation $4x^2+y^2=n$	Students can 1.to find the solutions of $x^2+y^2=z^2$ 2.to solve the equation of $x^4+y^4=z^2$ 3.to find the solutions of $4x^2+y^2=n$	18
3	Infinite continued functions: The equation $ax^2+by^2+cz^2=0$ - Infinite continued functions – Irrational numbers.	Students can 1.study the infinite continued functions 2.understand the results of irrational numbers 3.solve the equation $ax^2+by^2+cz^2=0$	18
4	Approximation to irrational numbers: Approximation to irrational numbers- Algebraic integers.	Students can 1.study the algebraic integers 2.know the results of approximation to irrational numbers 3.solve the related problems.	18
5	Quadratic Fields: Quadratic Fields – Units in quadratic fields.	Students can 1.study about the quadratic fields 2.understand the arithmetical functions 3.use the tools in cryptography and related applied subjects	18

Text Book:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	An introduction to the theory of Numbers	Ivan Nivan and Herbert S. Zukerman	1966(2)	Wiley Eastern Ltd.

Reference Books:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Elements of Number Theory	Kumaravelu and Suseela Kumaravelu	2002(1)	Raja Shankar Printers, Sivakasi
2	Elementary Number Theory	David M.Burton	2007(6)	Tata McGraw Hill Education Private Limited


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SEMESTER III

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAE32	Course Title: Calculus of Variations and Integral Equations	
Category: Major Elective 2	Credits:4	Hours: 6

Objectives:

1. To place at the disposal of the student, the basis of an intelligent working knowledge of a number of facts and techniques which are useful in varied fields of application.
2. To gain knowledge in maxima minima techniques and solution of certain types of integral equations.

Unit	Detailed Syllabus	Outcomes	Hours
1	Maxima and Minima: Calculus of Variations and Applications- Maxima and Minima-The simplest case- Illustrative examples. Exercise Problems: Chapter 2 (2, 6, 8 and 18) Sections:2.1-2.4.	Students can 1.learn the variation principles 2.know about maxima and minima 3.solve the problems	18
2	Lagrange's Multipliers: The variational notations – The more general case- Constraints and Lagrange's Multipliers – Variable end points. Exercise Problems: Chapter 2 (19, 20 and 21) Sections:2.5-2.8.	Students can 1.explain the Lagrange's multipliers 2.know about the general case 3.solve the problems by using Lagrange's Multipliers and Variable end points.	18
3	Integral Equations: Integral Equations- Introduction- Relation between differential and integral equations – The Green's function. Exercise Problems: Chapter 3 (1, 9 and 11) Sections:3.1-3.3.	Students can 1.work on integral equations 2.know about the relation between differential and integral equations 3.solve problems by using Green's function	18
4	Fredholm Equations: Linear equations in cause and effect – The influence function – The Fredholm equations with separable kernels – Illustrative Examples. Exercise Problems: Chapter 3 (40 and 43) Sections: 3.5-3.7.	Students can 1.work on Linear equations 2.know about the Fredholm equations with separable kernels 3.solve problems by using Fredholm equations	18
5	Hilbert Schmidt Theory: Hilbert Schmidt Theory – Iterative methods for solving equations of second kind. Exercise Problems: Chapter 3 (52 and 53) Sections: 3.8-3.9.	Students can 1.explain the Schmidt theory 2.solve the problems using Iterative methods for solving equations of second kind 3.develop the skills while doing/solving the various problems by using integral equations in all engineering sciences and etc.	18

Text Book:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Methods of Applied Mathematics	Francis B. Hildebrand	1952(1)	Prentice Hall of India, New Delhi.

Reference Books:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Differential Equations with Applications and Historical Notes	George F. Simmons	1992 (4)	Tata McGraw-Hill edition
2	Calculus of Variations with Applications	A. S. Gupta	2006(6)	Prentice Hall of India, New Delhi.


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SEMESTER III

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAE33	Course Title: Formal Languages and Automata Theory	
Category: Major Elective 2	Credits:4	Hours: 6

Objectives:

1. To place at the disposal of the student, the basis of an intelligent working knowledge of a number of facts and techniques which are useful in varied fields of application.
2. To gain knowledge in maxima minima techniques and solution of certain types of integral equations.

Unit	Detailed Syllabus	Outcomes	Hours
1	Finite automata, regular expressions: Finite state Systems – Basic definitions – Non deterministic finite automata – Finite automata with moves – Regular expressions. Chapter 2: Sec: 2.1 – 2.5.	Students can 1.acquire the fundamental understanding of the core concepts in automata theory and formal languages. 2.define the mathematical methods of computing devices, called abstract machines, 3.learn Finite Automata, Pushdown Automata and Turning Machines.	18
2	Properties of regular sets: The pumping lemma for regular sets – Closure properties of regular sets – Decision algorithms for regular sets – The Myhill- Nerode Theorem and minimization of finite automata. Chapter 3 : Sec : 3.1 – 3.4	Students can 1.acquire the fundamental understanding of core concepts relating to the theory of computation and computational models including (but not limited to) decidability and intractability. 2.identify formal language classes and prove language membership properties. 3.classify machines by their power to Recognize languages.	18
3	Context – free grammars : Motivation and introduction – Context-free grammars – Derivation trees – Simplification of context-free grammars – Chomsky normal form – Greibach normal form. Chapter 4 : Sec : 4.1 – 4.6	Students can 1.study the capabilities of these abstract machines. 2.employ finite state machines to solve problems in computing. 3.explain the deterministic and non-Deterministic machines.	18
4	Pushdown automata: Informal description – Definitions- Pushdown automata and context-free languages. Chapter 5 : Sec : 5.1 – 5.3	Students can 1.identify the different formal language classes and their relationships 2.design the grammars and recognizers for different formal languages. 3.determine the decidability and intractability of computational problems	18
5	Properties of context-free languages: The pumping lemma for CFL's – Closure properties for CFL's – Decision algorithms for CFL's. Chapter 5: Sec: 6.1 – 6.3	Students can 1.understand the properties of context 2.comprehend the hierarchy of problems arising in the computer sciences	18

Text Book:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Introduction to Automata Theory, Languages and Computation	John E. Hopcraft and Jeffrey D. Ullman	1979 (1)	Publishing House, New Delhi

Reference Books:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Introduction to languages & theory of computation	John.C.Martin	2003(2)	Tata McGraw-Hill
2	Introduction to Automata theory, languages and computation	Hopcraft , Motwan and Ullman	2006(3)	Pearson publisher


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SEMESTER IV

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC41	Course Title: Functional Analysis	
Category: Core – 15	Credits: 5	Hours: 6

Objectives:

1. To gain knowledge about Banach Spaces, Hilbert Spaces and Banach Algebra.
2. To use algebraic structure in Analysis.
3. To develop deeper and rigorous understanding of fundamental concepts of functional analysis, their properties and related theorems.

Unit	Detailed Syllabus	Outcomes	Hours
1	Banach Spaces: Banach Spaces – The definition and some examples – Continuous linear transformations – The Hahn Banach Theorem Chapter 9: Section 46 – 48. Problems : Section 46 : 1 – 4, Section 47 : 1 – 3, Section 48 : 1	Students can 1. describe the properties of normed linear spaces and construct examples of such spaces 2. understand the concepts of Banach spaces with examples. 3. understand and apply the fundamental theorem from the theory of normed and Banach spaces including the Hahn-Banach theorem	18
2	Imbedding: The Natural imbedding of N in N^{**} -The Open Mapping Theorem . Chapter 9 : Section 49, 50 Problems : Section 49(1-3), 50(2,3)	Students can 1. attain the detailed knowledge about Hilbert spaces. 2. understand the ideals open mapping theorem, the closed graph theorem, theorem and uniform boundedness theorem. 3. understand the Operator theory in Hilbert spaces	18
3	Hilbert Spaces: The conjugate of an operator – Hilbert Spaces – Definition and some simple properties–Orthogonal Complements. Chapter 9 : Section 51. Problems : Section 51(1-3) Chapter 10 : Section : 52, 53 Problems: Section 52 (4,6), 53(1-4)	Students can 1. analyze the results of adjoint and self-adjoint defined on Hilbert spaces 2. manipulate the elements theory of compact linear self-adjoint operators on Hilbert spaces. 3. analyze the results of Normal and Unitary operators defined on Hilbert spaces.	18
4	The conjugate space and disjoint: Orthonormal sets– The Conjugate Space H^* - The Adjoint of an operator – Self – Adjoint operators. Chapter 10 : Section : 54 – 57. Problems : Section 54 : 1 – 5, Section 55 : 1 – 3, Section 56 : 1 – 4, Section 57 : 1, 2.	Students can 1. get clear ideas about the Spectral theory. 2. understand the basic spectral properties. 3. get the ideas about Banach algebra with examples	18
5	Spectral Theory: Normal and Unitary Operators – Projections – Finite Dimensional Spectral Theory – Determinants and the Spectrum of an Operator – The Spectral Theorem. Chapter 10 : Section : 58, 59, Chapter 11 : Sec : 61, 62. Problems : Sections 58 : 1 – 4, Section 59 : 1 – 4, 62(1-5)	Students can 1. study about normal and unitary operators 2. apply the concepts of Eigen spectrum on normed linear spaces and spectral radius on Banach spaces.	18

Text Book:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Introduction to Topology and Modern Analysis	G.F.Simmons	2004(2)	McGraw Hill International Editions

Reference Books:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Functional Analysis	Walter Rudin	1991(2)	McGraw Hill Education(P) Ltd.
2	Functional Analysis	K. Chandrasekara Rao	2009(1)	Narosa Publishing House, New Delhi
3	Functional Analysis	B. V. Limaye	2017(3)	New Age International Pvt. Ltd


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SEMESTER IV

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC42	Course Title: Complex Analysis	
Category: Core – 16	Credits: 5	Hours: 6

Objectives:

1. To introduce and develop a clear understanding of the fundamental concepts of Complex Analysis such as analytic functions, Cauchy – Riemann relations and harmonic functions
2. To make students equipped with the understanding of the fundamental concepts of complex variable theory.
3. To acquire skill of contour integration.
4. To evaluate complicated real integrals via residue calculus.

Unit	Detailed Syllabus	Outcomes	Hours
1	Analytic functions: Analytic functions – Polynomials – Power series – Abel’s Limit Theorem Chapter 2: Section 1.1 – 1.4, Section 2.4, 2.5 Problems: Chapter 2 – Section 1.2: (1,4,5,7) 2.4(2-6)	Students can 1. know the limits and continuity for complex function as well as consequences of continuity. 2. apply the concept and consequences of analyticity and the Cauchy – Riemann equations of results on harmonic and entire functions. 3. analyze the series of analytic function and the types of convergence.	18
2	Conformal mappings: Conformal mappings – Linear transformations – the linear group – the cross ratio – Symmetry – line integrable – line integrable as functions of arc. Chapter 3 : Section 2.3, 3.1-3.3 Chapter 4 : Section 1.1-1.3 Problems : Chapter 3 – Sec 3.1 : 1– 4, Sec 3.2 : 1 – 3, Sec 3.3 : 1, 2, 4	Students can 1. analyze the linear transformation and its types. 2. understand line integrals as function of arcs and evaluate the integral. 3. understand the cross ratio and the Symmetry.	18
3	Cauchy’s Theorem for Rectangle: Cauchy’s theorem for Rectangle – Cauchy’s theorem in a disc, Cauchy’s Integral formula, Index of a point – The integral formula Chapter 4 : Section 1.4 & 1.5, Section 2.1 & 2.2 Problems : Chapter 4 – Sec 2.2 : 1 – 3	Students can 1. understand the acquisition of complex contour integrals and apply Cauchy integral formula 2. understand represent functions as Taylor series. 3. analyze the concepts of Cauchy residue theorem and its applications	18
4	Higher derivatives: Taylor’s Theorem: Higher derivatives – Taylor’s Theorem – Zeros and Poles – The local mapping – The maximum principle and the general statement of Cauchy’s Theorem (Statement only). Chapter 4 : Section 2.3, 3.1 to 3.4 and 4.4, Problems : Chapter 4 – Section 2.3(1) 3.2 : (1 – 4).	Students can 1. classify the singularities and the poles of function. 2. understand the higher derivatives by using Taylor’s theorem and evaluate the function 3. understand the concept of local mapping theorem.	18
5	Calculus of Residues: Calculus of Residues – The Residue theorem – The Argument Principle – Evaluation of definite integrals Chapter 4 : Section 5.1-5. Problems : Chapter 4 – Sec 5.2 : 1–3, Sec 5.3 : 1 – 3(a-g).	Students can 1. understand the residues and evaluate Complex integrals by using the residue theorem 2. apply the methods of complex analysis and to evaluate the definite and infinite integrals. 3. learn the Argument Principle and solve the problems	18

Text Book:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Complex Analysis	Lars V. Ahlfors	1979(3)	Tata McGraw Hill Publishing company Pvt.Ltd.

Reference Books:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	The elements of Complex Analysis	B. Choudhary	1992(2)	Wiley Editions
2	Function of one Complex Variable I	John B. Conway	1978(2)	Springer International Student Edition
3	Foundations of Complex Analysis	S. Ponnusamy	2015(2)	Narosa Publishing House


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SEMESTER IV

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAC43	Course Title: Operations Research	
Category: Core – 17	Credits: 5	Hours: 6

Objectives:

1. To identify and actual problems and its equivalent mathematical models.
2. To Apply on to different optimization techniques in real life situations.
3. To gain knowledge in Utilization of Optimum Resources.

Unit	Detailed Syllabus	Outcomes	Hours
1	Transportation Models and its Variants: Definition of the Transportation Model– Nontraditional Transportation Model– Transportation Algorithm – The Assignment Model. Chapter 5: Sections 5.1, 5.2, 5.3, 5.4 and Exercise Problems	Students can 1.formulate and solve the problems as networks and graphs. 2.develop linear programming (LP) models for shortest path, maximum flow, minimal spanning tree, critical path, minimum cost flow, and transshipment problems. 3.solve the problems by using special Solution algorithms.	18
2	Network Analysis: Network Definitions – Minimal Spanning Tree Algorithm – Shortest Route Problem – Maximum Flow Model – CPM – PERT. Chapter 6: Sections 6.2, 6.3, 6.4, 6.5,6.7 and Exercise Problems	Students can 1.use CPM and PERT techniques, to plan, schedule, and control project activities. 2.construct linear integer programming models and discuss the solution techniques. 3.formulate pure, mixed, and binary integer programming models.	18
3	Integer Linear Programming: Introduction – Applications - Integer Programming Solutions – Algorithms. Chapter 9: Sections 9.1, 9.2, 9.3 and Exercise Problems	Students can 1.solve the integer programming models using branch-and-bound method. 2.explain and why heuristics are used to solve some large-scale integer programming problems. 3.set up decision models and use some solution methods for nonlinear optimization problems.	18
4	Inventory Theory: Basic Elements of an Inventory Model – Deterministic Models: Single Item Stock Model With and Without Price Breaks – Multiple Item Stock Model With Storage limitations – Probabilistic Models: Continuous Review Model. Chapter 11: Sections 11.1, 11.2, 11.3, Chapter 16: Sections 16.1, 16.2 and Exercise Problems	Students can 1.analyse the general nonlinear programming problems. 2.formulate the nonlinear programming models. 3.use some solution methods for solving the nonlinear optimization problems.	18
5	Queuing Theory: Basic elements of Queuing Model – Role of Poisson and Exponential Distributions – Pure Birth and Death Models – Specialised Poisson Queues. Chapter 17: Sections 17.2, 17.3, 17.4, 17.6(up to 17.6.3) and Exercise Problems	Students can 1.know the concept of queuing theory and basic elements of queuing model 2.discuss the role of Poisson and Exponential Distributions. 3.study the pure birth and death models and specialized Poisson Queues.	18

Text Book:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Operations Research	Hamdy A. Taha	2004(7)	Prentice Hall of India Private Limited, New Delhi

Reference Books:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Introduction to Operations Research	Fredrick S Hiller, Gerald J. Lieberman	2017(10)	MC Graw Hill
2	Operations Research	KantiSwarup, P.K.Gupta and Manmohan	2008(13)	Sultan Chand & Sons
3	Operations Research	J.N Sharma	2013(5)	McMillan Publications


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SEMESTER IV

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAE41	Course Title: Advanced Algebra	
Category: Major Elective 3	Credits: 5	Hours: 6

Objectives:

1. To develop the concept of modules.
2. To analyze the finite fields properties.

Unit	Detailed Syllabus	Outcomes	Hours
1	Modules: R-module-Examples-sub module-cyclic-fundamental Theorem on finitely generated modules over Euclidean rings. Text Book:1 Chapter: 4 - Section:4.5	Students can 1.understand the concepts of R-Module 2.analyze the concept of submodule and cyclic with illustration. 3.understand the fundamental theorem on finitely generated modules.	18
2	Finite Fields-Wedderburn Theorem on finite division rings. (first proof only) Text Book:1 Chapter: 7– Section: 7.1 and 7.2	Students can 1.improve and to determine all possible finite fields. 2.analyze the finite fields properties and how its possess. 3.understand the Wedderburn Theorem.	18
3	Theorem on Frobenius – Integral Quaternion’s and the four square theorem Text Book:1 Chapter: 7 – Section 7.3 and 7.4	Students can 1.understand the divison rings algebraic in the real field. 2.identify the Lagrange Identity. 3.develop the lagrange’s Theorem in number theory that pave the way to do research	18
4	Two classic theorem Text Book: 2 Chapter: 9	Students can 1.definite idempotent elements and hence Boolean rings 2.give examples of Boolean rings 3.state and prove stone representation and Wedderburn’s theorem	18
5	Rings with chain conditions Text Book:2 Chapter: 11	Students can 1.understand Ascending chain condition and descending chain condition for ideas in rings 2.define Artinian and Notherian rings after proving the equivalent conditions theorems related to the definitions 3.prove Hilbert basis theorem, Livitsky’s theorem and Extension of Levitsky’s theorem to Artinian rings 4.give examples of artinian and Notherian rings	18

Text Books:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Topics in Algebra	I.N.Herstein	2005(2)	Wiley Eastern Limited
2	A first course in rings and ideals	David M. Burton	1970(1)	Addison – Wesley

Reference Books:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	A course in Abstract Algebra	Vijay K. Khanna, S.K. Bhambri	1998(2)	Vikas Publishing House – New Delhi.
2	Fields and Rings	Kaplemsky, Irving	1972(2)	University of Chicago , Chicago
3	Commutative Algebra	N. S. Gopalakrishnan	1971(2)	Prentice Hall of India


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SEMESTER IV

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAE41B	Course Title: Advanced Topology	
Category: Major Elective 3	Credits: 5	Hours : 6

Objectives:

1. To provide the knowledge of topological Spaces and their importance.
2. To gain knowledge about compactness in metric spaces.
3. To understand the concepts of Baire Spaces.

Unit	Detailed Syllabus	Outcomes	Hours
1	The Tychonoff theorem - The Stone-Cech Compactification – Local finiteness	Students can 1.Demonstrate and understanding the concepts of the stone-cech compactification. 2.Gain the knowledge about Local finiteness 3.Understand Nagata -smirnov metrization theorem.	18
2	The Nagata – Smirnov metrization theorem	Students can 1.Know the definition of paracompactness. 2.Understand the smirnov metrization Theorem	18
3	Complete metric spaces – A space filling curve	Students can 1.Understand the complete metric spaces 2.Gain knowledge about space filling curve	18
4	Compactness in metric spaces – Pointwise and compact convergence – Ascoli’s theorem.	Students can 1.Demonstrate the concept of pointwise and compact convergence 2.Understand the Ascoli’s Theorem. 3.Gain the knowledge of compactness	18
5	Baire spaces – A Nowhere-differentiable function	Students can 1.Get clear idea about Baire spaces. 2.obtain the knowledge of Baire space which used in computable analysis, descriptive set theory. 3.improve the standards of understanding and analyzing the Topology	18

Text Book:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Topology	James R. Munkres	2002(2)	Prentice Hall of India

Reference Books:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Introduction to Topology	S. T. Hu	1979(1)	Tata McGraw Hill, New Delhi
2	Topology	N James Dugundj	1990(1)	Universal book stall, New Delhi


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SEMESTER IV

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAE43	Course Title: Stochastic Processes	
Category: Major Elective 3	Credits: 5	Hours: 6

Objectives:

1. To gain the knowledge about Markov processes in discrete and continuous time.
2. To identify the classes of states in Markov chains and characterize the classes

Unit	Detailed Syllabus	Outcomes	Hours
1	Generating Functions And Markov Chains: generating Functions - Probability of Bernoulli, Poisson, Geometric and Logarithmic distributions - Definitions and Examples of Stochastic processes – Markov Chains: Definitions and Examples – Transition Matrix – Probability Distribution – Order of a Markov Chain – Markov Chains as graphs – Higher Transition probabilities.	Students can 1.understand the definition of a stochastic process and in particular a Markov process. 2.describe a markov chain and its transition matrix 3.calculate the distribution of a markov chain at a given time.	18
2	State and Stability of Markov Chain: Classifications of states and chains – Determination of higher transition probabilities – Stability of a Markov System – Graph theoretic approach	Students can 1.classify the states of a markov chain 2.determine the stationary distributions of a Markov chain 3.understand the Stability of a Markov System using Graph Theoretic approach	18
3	Poisson Process: Markov processes with discrete state space: Poisson process and its extensions – Poisson Process – Properties of Poisson Process- Poisson process and related distributions – Generalisation of Poisson Process – Poisson cluster process – Yule furry process – Time dependent Poisson Process – Birth and Death Process	Students can 1.understand the definitions and main properties of poisson process. 2.gain the knowledge about Yule furry process 3.understand the time dependent poisson process	18
4	Wiener Process: Markov Processes with continuous state Space: Introduction – Brownian Motion – Wiener Process – Differential equations for Wiener Process – Kolmogorov equations – First Passage time distribution for Wiener process – Ornstein Uhlenbeck process.	Students can 1.understand the Wiener process with continuous state space 2.determine the differential equations of wiener process. 3.Gain the knowledge of the Wiener process	18
5	Renewal Process: Renewal Process in discrete time – Relation between F(s) and P(s) – Renewal interval – Renewal theory in discrete time – Renewal Processes in Continuous Time – Renewal equation – Stopping time: Wald's Equation – Elementary renewal theorem.	Students can 1.determine the renewal process in discrete time 2.classify the F(s) and P(s) 3.understand the renewal time equation	18

Text Book:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Stochastic processes	J.Medhi	2009(3)	New Age International publishers

Reference Books:

S.No	Title of the Book	Author/s	Year(Edn.)	Publisher/s
1	Introduction to stochastic processes	Paul.G,Hoel, Sidney C.Port, Charles J	1972(1)	Haughton Mifflin Comp.
2	A first Course in stochastic Processes	Samuel Karlin and Howard M.Taylor	1975(2)	Academic Press


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SEMESTER IV

Programme: M.Sc.,	Subject: Mathematics	
Course code: 19PMAPWV	Course Title: Project	
Category: Core – 18	Credits: 6	Hours: 6

Objectives:

1. To provide training in scientific skills.
2. To prepare students for professional training programme or entry level jobs in any area of Mathematics

Outcomes:

Students can

1. have increased their capacity to think critically.
2. have increased their ability to design analyse and execute an experiment.
3. have increased their confidence and ability in communication skills.(in writing and oral)
4. apply the relative notations in the respective areas and finding the results.
5. analyse result with the existing results.
6. Interpreting the results with suitable examples.


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A branch of Sri Ramakrishna Tapovanam, Tirupparaithurai
Affiliated to Manonmaniam Sundaranar University, Tirunelveli
Degree M.Phil; Subject: Mathematics
Programme structure (wef 2019-2020)

Sem	Part	Category	Course code	Course title	Hours/week			Credits
					L	P	T	
1	III	Core – 1	19MMAC11	Research and Teaching Methodology	4	0	4	4
1	III	Core – 2	19MMAC12	Advanced Analysis	4	0	4	4
1	III	Major Elective 1		Project Oriented Elective Course				
			19MMAE11A	(a) Banach Algebra and Spectral Theory	4	0	4	4
			19MMAE11B	(b) Advanced Graph Theory	4	0	4	4
			19MMAE11C	(c) Nets and Filters	4	0	4	4
			19MMAE11D	(d) Theory of Near-rings	4	0	4	4
			19MMAE11E	(e) Advanced Calculus	4	0	4	4
			19MMAE11F	(f) Algebraic Graph Theory	4	0	4	4
			19MMAE11G	(g) Stochastic Modeling.	4	0	4	4
			19MMAE11H	(h) Wavelets	4	0	4	4
2	III	Core-3	19MMA PWV	Project and Viva Voce	0	0	12	12
Total					12	0	24	24



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Semester I

Programme: M. Phil	Subject: M. Phil Mathematics	
Course code: 19MMAC11	Course Title: Research and Teaching Methodology	
Category: Core – 1	Credits: 4	Hours: 4

Objective:
To apply practically the abstract mathematical knowledge in a concrete field or area and become genius.

Units	Detailed Syllabus	Hours
1	Theses and dissertations-Defining the problem-Limiting the problem – Consulting source material – preparing a working bibliography – Selecting a topic - Mathematical Journals – AMS subject classification (primary and secondary. Main subjects only) - Impact factor-citation index-search engines.	12
2	Sample files – editing cycle – The key board- your first note-lines too wide-more text features - Editors in latex – Latex editor – texnic center-BaKoMatex – texcad - A note with math- errors in math- building blocks of a formula-Displayed formulas - The anatomy of an article-An article template-using latex-converting an article to a presentation.	12
3	Problems and Theorems of Closed sets – Limit points – Continuity - Connectedness.	12
4	Problems and Theorems of Compactness – Countability - T_0 , T_1 , T_2 and regular spaces	12
5	Study of any research article in Topology – Named theorems in Separation Axioms (PPT Presentations by the Students).	12

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Latex Tutorials	A.Primer	-	Indian TEX Users Group.
2	1. Topology	James R.Munkres	Second Edition,2006	Prentice – Hall of India, Private Ltd, New Delhi

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Charting a Course for a Successful Research career	Prof. Alan M Johnson AM	Second Edition (2011)	Elsevier
2	Theory and problems of general Topology	Seymour Lipschutz	International Edition (2010).	McGraw Hill

Outcomes:
Upon the completion of Research and Teaching Methodology, the students will be able to express their mathematical knowledge logically, coherently and legitimately following all the guide lines of writings. They also sufficiently learn to take up research work and defined their writings meaningfully.


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MMA- BOS- SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI 627011

Semester I

Programme: M. Phil	Subject: M. Phil Mathematics	
Course code: 19MMAC12	Course Title: Advanced Analysis	
Category: Core – 2	Credits: 4	Hours: 4

- Objectives:
- 1. To understand borel measure in real field
 - 2. To understand borel measure in complex field

Units	Detailed Syllabus	Hours
1	Abstract Integration : The concept of measurability – Simple functions – Elementary properties of measures – Arithmetic in $[0,\infty]$ - Integration of positive functions – Lebesgue’s Monotone convergence theorem - Integration of complex functions – Lebesgue’s dominated convergence theorem - The role played by sets of measure zero.	12
2	Positive Boral Measures : Topological preliminaries – Uryshon’s Lemma - The Riesz representation theorem – Regularity properties of Borel measures – Lebesgue measure – Continuity properties of measurable functions – Lusin’s Theorem.	12
3	Complex Measures : Total variation – Absolute continuity – Consequences of the Radon-Nikodym theorem – Bounded linear functions on L^p - Complex version of The Riesz representation theorem.	12
4	H^p - Spaces : Sub-harmonic functions – The spaces H^p and N - The theorem of F. and M. Reisz – Factorization theorems – The shift operator – Beurling’s Theorem - Conjugate functions.	12
5	Fourier Transforms : Formal properties – The inversion theorem – The uniqueness theorem - The Plancherel theorem – The Banach algebra L^1 . Holomorphic Fourier Transforms : Two theorems of Paley and Wiener – Quasi-analytic classes – The Denjoy- Careman theorem.	12

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Real and Complex Analysis	Walter Rudin	3 rd edition, 1986	Tata McGraw hill publications, New Delhi

- Outcomes:
- Upon the completion of Advanced Analysis, the students will be able to
- 1. Able to investigate the concepts of Abstract Integration.
 - 2. A fundamental understanding of Fourier Transforms


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Semester I

Programme: M. Phil	Subject: M. Phil Mathematics	
Course code: 19MMAE11A	Course Title: Banach Algebra and Spectral Theory	
Category: Major Elective 1 (a)	Credits: 4	Hours: 4

- Objectives:
- 1. To introduce the topics of Banach algebra
 - 2. To introduce the topics of Hilbert Spaces
 - 3. To learn about various operators and their characteristics

Units	Detailed Syllabus	Hours
1	Banach algebras – Complex Homomorphisms – Basic properties of Spectra – Symbolic Calculus.	12
2	Differentiation - Group of invertible elements – Commutative Banach algebra – Ideals and Homomorphisms – Gelfand transforms.	12
3	Involutions – Applications to non commutative algebra – Positive Linear functionals.	12
4	Bounded Operators on Hilbert spaces – Bounded Operators – A commutativity theorem – Resolution of the Identity – Spectral theorem.	12
5	Eigen values of normal operators – Positive operators and square roots – Group of invertible operators – Characterization of V^* algebra.	12

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Functional Analysis	Walter Rudin	II Edition	Tata McGraw Hill

- Outcomes:
- Upon the completion of Banach Algebra and Spectral Theory, the students will be able to
- 1. Able to investigate various operators and their characteristics
 - 2. Understand the fundamentals of spectral theory and appropriated some of its power


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Semester I

Programme: M. Phil	Subject: M. Phil Mathematics	
Course code: 19MMAE11B	Course Title: Advanced Graph Theory	
Category: Major Elective 1(b)	Credits: 4	Hours:4

Objectives:

- 1. To introduce some topics for research in graph theory
- 2. To provide several conjectures and open problems to widen the scope of research
- 3. To identify the area and problems for research in graph theory

Units	Detailed Syllabus	Hours
1	Dominating sets in graphs - Bounds on the domination number: in terms of order, degree, size, degree, diameter and girth.	12
2	Product graphs and Vizing’s conjecture – Domatic number - Nordhaus-Gaddum type theorems - dominating functions.	12
3	Decompositions and colorings of a graph – Generalizations of graph decompositions.	12
4	Necessary conditions for the existence of a G-decomposition of a graph - Cycle decompositions, Vertex labelings and graceful graphs.	12
5	Perfect graphs: The perfect graph theorem – p-critical and partitionable graphs – A polyhedral characterization of perfect graphs and p-critical graphs – The strong perfect graph conjecture (and recent theorem).	12

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Fundamentals of Domination in graphs	Teresa W. Haynes, Stephen T. Hedetniemi and Peter J. Slater	1998	Marcel Decker
2	Decompositions of graphs	Juraj Bosak	--	Kluwar Academic Publishers

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Algorithmic graph theory	Martin Charles Golumbic	--	Academic Press

Outcomes:

- Upon the completion of Advanced Graph Theory, the students will be able to
- 1. Will get a strong background of graph theory concepts
 - 2. Apply principles and concept of graph theory in practical situations.


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Semester I

Programme: M. Phil	Subject: M. Phil Mathematics	
Course code: 19MMAE11C	Course Title: Nets and Filters	
Category: Major Elective 1 (c)	Credits: 4	Hours: 4

- Objective:
1. To know about nets and filters in topological space.

Units	Detailed Syllabus	Hours
1	Sequences – Convergent sequences in metric space – convergent sequences in topological space	12
2	Net: Poset – Directed set – Concept of Net – Properties – Convergence of Net – Properties	12
3	Filters: Concept of Filter – Properties – convergence properties	12
4	Generalized topology – Generalized nets – Properties – Convergence	12
5	Generalized filters – Properties – Convergence	12

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Introduction to General Topology	K.D.Joshy	2 nd reprint, June 1986	Wiley Eastern Limited
2	Downloaded Research Articles			

- Outcomes:
- Upon the completion of Nets and Filters, the students will be able to
1. Able to understand the concept of Nets
 2. able to investigate the concept of Generalised filters


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Semester I

Programme: M. Phil	Subject: M. Phil Mathematics	
Course code: 19MMAE11D	Course Title: Theory of Near Rings	
Category: Major Elective 1(d)	Credits: 4	Hours: 4

- Objectives:
1. To provide the knowledge about the generalized ring structures
 2. To deal about generalized field conditions.

Units	Detailed Syllabus	Hours
1	The elements of theory of near-rings.	12
2	Ideal theory.	12
3	Elements of structure theory.	12
4	Near-fields.	12
5	More classes of near-rings.	12

Text Book:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Theory of Near-rings	G. Pilz	--	North Holland

- Outcomes:
- Upon the completion of Theory of Near Rings, the students will be able to
1. Understand the concept of near-rings
 2. Able to investigate the concept of near-fields


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Semester I

Programme: M. Phil	Subject: M. Phil Mathematics	
Course code: 19MMAE11E	Course Title: Advanced Calculus	
Category: Major Elective 1(e)	Credits: 4	Hours: 4

- Objectives:
1. To give a thorough understanding of differentiation and integration of functions of several variables.

Units	Detailed Syllabus	Hours
1	Differentiation – Basic theorems – Partial derivatives – Derivatives – Inverse functions.	12
2	Implicit functions – Integration – Measure zero and Content zero – Integrable functions.	12
3	Fubini’s theorem – Partitions of Unity – Change of Variables.	12
4	Integration on chains - Algebraic preliminaries – Fields and Forms - Geometric preliminaries – The fundamental theorem of Calculus.	12
5	Manifolds – Fields and Forms on Manifolds – Stokes’ theorem on Manifolds - The Volume element – The Classical theorems.	12

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Calculus on Manifolds	Michael Spivak	--	The Benjamin / Cummings Publishing Company

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Mathematical Analysis	Tom M. Apostol	II	Narosa Publishing Company
2	Advanced Calculus	Gerald B.Folland	--	Pearson Publishing Company

- Outcomes:
- Upon the completion of Advanced Calculus, the students will be able to
1. Will be able to limit of a function at a point using the definition of limit
 2. Compute the expression for derivate of a function using the chain rule


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Semester I

Programme: M. Phil	Subject: M. Phil Mathematics	
Course code: 19MMAE11F	Course Title: Algebraic Graph Theory	
Category: Major Elective 1(f)	Credits: 4	Hours: 4

- Objectives:
1. To improve the knowledge of the learner to apply algebra in graph theory.
 2. To give adequate exposure about algebraic approach to graph theory
 3. To enable the student to do qualitative research in algebraic graph theory

Units	Detailed Syllabus	Hours
1	Linear Algebra in graph theory: The spectrum of a graph – Regular graphs and line graphs - The homology of graphs.	12
2	Spanning trees and associated structures – Complexity – Determinant expansions.	12
3	Symmetry and regularity of graphs: General properties of graph automorphisms – Vertex-transitive graphs – Symmetric graphs – Trivalent symmetric graphs.	12
4	The Covering - graph construction – Distance-transitive graphs - The feasibility of intersection arrays.	12
5	The Laplacian of a graph: The Laplacian matrix – trees – representations – energy and eigenvalues – connectivity – the generalized Laplacian – Multiplicities – embedding.	12

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Algebraic Graph Theory	Norman Biggs	1974	Cambridge University Press, London
2	Algebraic Graph Theory	Chris Godsil, Gordon Royle	2006	Springer-Verlag, New York

- Outcomes:
- Upon the completion of Algebraic Graph Theory, the students will be able to
1. Able to do qualitative research in algebraic graph theory
 2. Understand the concept of Laplacian of a graph


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Semester I

Programme: M. Phil	Subject: M. Phil Mathematics	
Course code: 19MMAE11G	Course Title: Stochastic Modeling	
Category: Major Elective 1(g)	Credits: 4	Hours: 4

Objectives:

1.
- To get deep knowledge of stochastic processes.

Units	Detailed Syllabus	Hours
1	Markov chains: Transition probability matrix of a Markov chain – First step Analysis – Functional of Random walks and successive runs – classification of states – Basic Limit Theorem of Markov Chain.	12
2	Continuous time Markov Chains : Poisson distribution and Poisson process – Distributions associated with Poisson process – Pure Birth Process – Pure Death process – Birth and Death Process – Limiting behavior of Birth and Death Process – Birth and Death Process with absorbing states.	12
3	Renewal Phenomena: Renewal process and Related concepts – Poisson process viewed a Renewal Process – Asymptotic behavior of Renewal process.	12
4	Branching Process and Population Growth: Branching process – branching process and generating functions – Geometrically distributed offspring – variation on Branching process – Stochastic models of Plasmid Reproduction and Plasmid copy Number partition.	12
5	Queuing Systems : Queuing Processes – Poisson Arrival and exponentially distributed service times – The M/G/I and M/G/8 systems – variations and extensions.	12

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	An Introduction to Stochastic Modeling	Howard M. Taylor and Samuel Karlin	Revised Version 1984	Academic Press, New York

Outcomes:

Upon the completion of Stochastic Modeling, the students will be able to

1.
- Apply problem solving techniques using probabilistic methods in various situations
2.
- Understand the concepts of Queuing systems


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Semester I

Programme: M. Phil	Subject: M. Phil Mathematics	
Course code: 19MMAE11H	Course Title: Wavelets	
Category: Major Elective 1(h)	Credits: 4	Hours: 4

Objectives:

1. To know about spline wavelets and time-frequency analysis.

Units	Detailed Syllabus	Hours
1	An Overview : Fourier to Wavelets – Integral Wavelets Transform and Time frequency analysis – Inversion formulas and duals – Classification of Wavelets – Multi-resolution analysis – Spines and Wavelets. Fourier Analysis : Fourier and Inverse Fourier Transformation – Continuous Time Convolution – The delta function – Fourier Transformation of square integrable functions.	12
2	Fourier Analysis (contd): Fourier Series – Basic Convergence Theory – Poisson Summation Formula. Wavelet Transforms and Time Frequency Analysis : The Gabor Transforms – Short time Fourier Transforms and the uncertainty principle – The integral Wavelet Transform – Dyadic Wavelets – Inversion – Frames – Wavelet Series.	12
3	Cardinal Spline Analysis : Cardinal Spline spaces – B-splines and their basic properties – The time scale relation and an interpolating graphical display algorithm – B-Net representations and computation of cardinal splines - Constructions of cardinal splines – constructions of spline application formulas – Construction of Spline interpolation formulas.	12
4	Scaling functions and Wavelets : Multi-resolution analysis – Scaling functions with finite two scale relation – Direction sum Decompositions of - Wavelets and their duals.	12
5	Cardinal Splines Wavelets : Interpolating splines wavelets – Compactly supported spline – Wavelets – Computation of Cardinal spline Wavelets – Euler – Frebenious Polynomials. Orthogonal Wavelets : Examples of orthogonal Wavelets - Identification of orthogonal two scale symbols - Construction of compactly supported orthogonal wavelets.	12

Text Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	An introduction to Wavelets	Charles K. Chui	1992	Academic Press, New York

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Approximation theory and Fourier Analysis	Chui C. K	1991	Academic Press Boston
2	Wavelets	Daribeckies I	1992	CBMS-NSF Series in Appl, SIAM Philadelphia
3	Spline Functions: Basic Theory	Schurnaker. L	1981	Wiley, New York
4	Applications to Spline Functions	Nurnberger G	1989	Springer Verlag, New York

Outcomes:

Upon the completion of Wavelets, the students will be able to

1. Able to handle problems and conduct researches related to theoretical and applied problems related to time frequency analysis
2. Understand continuous and discrete wavelets transforms and singular integrals


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TIRUNELVELI – 627 011
Department of Mathematics
CERTIFICATE PROGRAMME
VEDIC MATHEMATICS

1. CHAIR PERSON OF THE COURSE

Smt. S. Ammani,
Head & Assistant Professor in Mathematics,
Sri Sarada College for Women,
Tirunelveli -627011

2. COURSE TEACHER

Selvi B.Revathy
Assistant Professor in Mathematics,
Sri Sarada College for Women,
Tirunelveli-627011

3. COURSE TITLE

Vedic Mathematics

4. OUTCOME OF THE COURSE

- To create interest in solving arithmetical problems.
- To eradicate Math phobia.
- To enable the students to do calculations in a fast manner.
- To make the students to apply this methods in competitive examinations for solving problems.

SYLLABUS /UNITS

Unit - I

Multiplication of 2 digit, 3 digit and 4 digit numbers using

- GomutrikaBidhi (Zig-Zag Method)
- BarganaBidhi (Square Method)
- NikhilamBidhi (Universal)
- Urdhati –PryogvamBidhi (Up and Cross)

Unit - II

Square of two digit numbers using Anuruppa Sutra (Ratio Method)

Unit - III

Cube of two digit numbers using Anuruppa Bidhi

Unit - IV

Square root of a number using

- Vilokena Bidhi (Analysis Method)
- B hag Bidhi (Division Method)

Unit - V

Two digit and three digit cube root of a number using Vilokena Bidhi (Analysis)

5. Reference Book: ‘Vedic Mathematics’ by Dr. V.S. Narasimman and C. Mayilvahanan.

6.ELIGIBILITY FOR ADMISSION

+2 Or Equivalent were eligible

7. DURATION OF THE COURSE: 30 Hours

8. COMPONENTS OF EXAMINATION

Theory -75 Marks

Assignment – 5 Marks

Quiz – 10 Marks

Presentation – 10 Marks

9. GRADING SYSTEM AND CERTIFICATION

Overall Grade

Marks	Grade
91 – 100	H
81 – 90	D+
71 – 80	D
61 – 70	A
51 – 60	B
41 – 50	C+
35 – 40	C

10. MODEL QUESTION PAPER

Section A: Fill in the blanks

$$10 \times 1 = 10$$

Section B: To answer any 5 from 7

$$5 \times 5 = 25$$

Section C: To answer any 3 from 5

$$2 \times 15 = 30$$

Section D: To answer any 1 from 2

$$1 \times 10 = 10$$

Total 100


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TIRUNELVELI – 627 011
Department of Mathematics
CERTIFICATE PROGRAMME
GANDHIAN THOUGHT AND PRACTICE

1. CHAIR PERSON OF THE COURSE

Prof (Major) P Chandrasekaran
Director, Sri Sarada College for Women,
Tirunelveli -627011

2. COURSE TEACHER

Selvi. A. Shunmugapriya
Assistant Professor in Mathematics
Sri Sarada College for women,
Tirunelveli-627011

3. COURSE TITLE

Certificate Course in Gandhian Thought and Practice (CGT)

4. OBJECTIVES

- To make the students to understand the current trends in Social, Economical, Political, Cultural, Educational and Science & Technological issues with the possible applications of Gandhian Philosophy and Practice.
- To make the younger generation to be a social engineer for the purpose of transformation of society.
- To make the rural youth as the social ambassador from the local to the global level

5. SYLLABUS / UNITS

Paper I: Gandhiji life and achievements
(kfhj;kh fhe;jpabd; tho;f;ifAk; rhjidfSk;)

- Unit – I:** Birth- Parents-Childhood-Education-Memorable incidents
Unit – II: London experience and Training-Barrister life-Principle and Practice
Unit – III: Global Revolutions @ England, America, France, China, Russia- Indian National Freedom Struggle
Unit – IV: Social-Cultural-Religious transformations in India
Unit – V: Gandhian Contemporaries

Paper II: Ahimsa (mfpk;ir)

- Unit – I:** Ahimsa- History, Meaning, Values and Philosophy
Unit – II: Ahimsa Satyagrahas in India and Abroad – Individual Satyagraha
Unit – III: Ashrams and Gandhian Institutions – Shanthisena Training and Practice
Unit – IV: South Africa life and experiments-Seven Social Sins
Unit – V: Persuasion, Ahimsa amidst conflicts, Ahimsa – an alternative for war

Paper III: Sarvodaya (rh;Nthjak;)

- Unit – I:** Sarvodaya-Meaning-values-History and Philosophy
Unit – II: Social –Economic-Political Structure
Unit – III: Nai Talim-Wardha Education-Basic Education, (Company & Free), Craft Education, Education through Mother Tongue; Adult Education; Peace Education
Unit – IV: Constructive Programmes – Movements – Gramdhan – Boomidhan – Shramdhan- Swaraj
Unit – V: Unto this last – its impact (Antyodaya –Uplift of the last) –Decentralisation - KVIC

Reference Book:

1. Ahimsai – Dr Abdul Razaak
2. Sarvodayam – Dr M P Gurusamy
3. Gandhiyugam – Dr M P Gurusamy

6.ELIGIBILITY FOR ADMISSION: Pass in 10th class

7.DURATION OF THE COURSE: 1 year (45 hrs per paper)

8.Medium of Instruction: English and Tamil

9.Mode: Part Time/ Evening Course

10.Number of Papers in the Course: 3 – Each paper carries 100 marks

- a) Paper I: Gandhiji life and achievements (kfhj;kh fhe;jpabd; tho;f;ifAk; rhjidfSk;)
- b) Paper II: Ahimsa (mfpk;ir)
- c) Paper III: Sarvodaya (rh;Nthjak;)

11.Certification of Pass:

1. All the papers have to be passed together
2. To appear for absent paper or failed paper cannot be considered
3. For completion of the course all the papers have to be passed simultaneously

12.GRADING SYSTEM AND CERTIFICATION

Passing Minimum: 40 Marks; **III Class:** up to 49; **II Class:** 50 to 59; **I Class:** 60-74; **Distinction:** 75 and above

Overall Grade

Marks	Grade
91 – 100	H
81 – 90	D+
71 – 80	D
61 – 70	A
51 – 60	B
41 – 50	C+
35 – 40	C

13.Question Paper Pattern

Section A: Fill in the blanks	20 X 1 = 20
Section B: To answer any 5 from 7 in 250 words	5 X 5 = 25
Section C: To answer any 3 from 5 in 600 words	3 X 15 = 45
Section D: To answer any 1 from 2 in 800 words	1 X 10 = 10
(Section D on Gandhian Institutions/Practice of Gandhian Principles)	-----
Total	100


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Department of Mathematics
Diploma Programme
Gandhian Thought and Practice

1. CHAIR PERSON OF THE COURSE

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Director, Sri Sarada College for women,
Tirunelveli -627011

2. COURSE TEACHER

Selvi. A. Shunmugapriya
Assistant Professor in Mathematics
Sri Sarada College for women,
Tirunelveli-627011

3. COURSE TITLE

Diploma in Course in Gandhian Thought and Practice (DGT)

4. OBJECTIVES

- To make the students to understand the current trends in Social, Economical, Political, Cultural, Educational and Science & Technological issues with the possible applications of Gandhian Philosophy and Practice.
- To make the younger generation to be a social engineer for the purpose of transformation of society.
- To make the rural youth as the social ambassador from the local to the global level.

5. SYLLABUS /UNITS

Paper I: Politics and Economics
(fhe;jpa murpaYk; nghUshjhuKk;)

Unit – I: Ethics and Politics – Means and ends – Nonviolence Governance – Democracy – de centralization – Panchyat Raj

Unit – II: Satyagraha a political weapon – Democracy and Satyagraha – Rights and Duties – Concept of Swaraj – Unity in diversity – Disarmament – Crime and Punishment – nonviolent defence policy

Unit – III: Gandhian critique of capitalism, socialism, communism and market economy – Gandhian economics an alternative model – KVIC – appropriate technology – Swadeshi – Bread labour – Production by masses and Production for consumption

Unit – IV: Eco friendly sustainable development – Simple living voluntary poverty, Need instead of greed, Trusteeship, economic Justice – Holistic development through welfare of all and welfare of the last

Unit – V: Field visit – fieldwork - Case study analysis – Details on Sarvodaya production and sales centres – encountering Gandhian Economists and Practitioners – organizing Shanti Sena group – Visiting the Gandhian Institutions

Paper II: Religion and Philosophy (fhe;jpa rkaKk; jj;JtKk;)

Unit – I: Gandhian Concept of truth – God is truth and Truth is God – Absolute and Relative truth – Ends and means – Truth and life style – Knowledge and Wisdom – Reality, Social Construction, Deconstruction, De-Schooling and reconstruction

Unit – II: Gandhian view on Humanism, Secularism – Goals of human life – Gandhian Ethics – Ethical religion – Eleven Ashram Vows of Gandhi and their relevance for our times

Unit – III: Gandhiji's religious faith – influence of traditions – Religion as away of life – Religion and politics - Religion and Economics – Science and Spirituality

Unit – IV: Inter-religious prayer – ways to communal harmony – Equality and unity of religion – pluralism – Inter – religious dialogue. Gandhian vision of Bhakti, Karma and Gnana Yoga – Tolerance, Forgiving and Tolerance

Unit – V: Self analysis of truthfulness – Self analysis of ethical behaviour – Workshop places of different religions – Details of religious festivals – encounter the people of other religions – Inter- religious prayer participation – Communal Harmony Services

Paper III: Sociology and Education (fhe;jpa rKftpaYk; fy;tpAk;)

Unit – I: Social Philosophy – Individual and society – Social revolution – removal of untouchability and caste system – uplift of women – prohibition – poverty alleviation - equality

Unit – II: Gandhiji's view on inter-caste and inter-religious marriages – dowry – simple living – ashram community life – family life – voluntary poverty – ascetic life, selfless service – social justice and social change – problems of disabled, aged and old people

Unit – III: Aim and philosophy of education – Gandhi's educational theory – Wardha Scheme – Zakir Hussain Committee report – Psychological, Sociological and economic aspects

Unit – IV: Religion in education – Education for peace, non violence and community development- Women and Education – Adult and Basic Education

Unit – V: Gandhian Ashram Centre – Educational Centres – Service for the liberation of weaker sections – Adult Education Programme - Sanitary and Hygiene Service – Awareness generation on Prohibition

Reference Book:

1. My Experiments with Truth Volumes – 5, 10, 11, 12
2. Gandhi Economics – K Arunachalam & S Jeyapragasam
3. Hind Swaraj – M K Gandhi
4. Religion – Swami Vivekananda
5. Gandhian Techniques for the liberation of the weaker sections
6. Gandhian Educational Philosophy – K Muniyandi
7. Education and Society according to Gandhi – M Padamuthu

5. ELIGIBILITY FOR ADMISSION: Pass in 12th class and CGT

6. DURATION OF THE COURSE: 1 year (45 hrs per paper)

7. Medium of Instruction: English and Tamil

8. Mode: Part Time/ Evening Course

- 9.Number of Papers in the Course: 3 – Each paper carries 100 marks
- a) Paper I: Politics and Economics (fhe;jpa murpaYk; nghUshjhuKk;)
 - b) Paper II: Religion and Philosophy (fhe;jpa rkaKk; jj;JtKk;)
 - c) Paper III: Sociology and Education (fhe;jpa rKftpaYk; fy;tpAk;)
 - d) Paper IV: Project Work: Field Visit/ Field Work/ Case Study/ Survey Study/ Problem analysis/ Rural – Semi Urban Issues – Social, Psychological, Economical, Educational, Ethical, Cultural, Science and Technology impact Studies

- 10.Certification of Pass:
- 1. All the papers have to be passed together
 - 2. To appear for absent paper or failed paper cannot be considered
 - 3. For completion of the course all the papers have to be passed simultaneously

11.GRADING SYSTEM AND CERTIFICATION

Overall Grade

Marks	Grade
91 – 100	H
81 – 90	D+
71 – 80	D
61 – 70	A
51 – 60	B
41 – 50	C+
35 – 40	C

Passing Minimum: 40 Marks; III Class: up to 49; II Class: 50 to 59; I Class: 60-74;
Distinction: 75 and above

12.Question Paper Pattern

Section A: Fill in the blanks	20 X 1 = 20
Section B: To answer any 5 from 7 in 250 words	5 X 5 = 25
Section C: To answer any 3 from 5 in 600 words	3 X 15 = 45
Section D: To answer any 1 from 2 in 800 words	1 X 10 = 10
(Section D on Gandhian Institutions/Practice of Gandhian Principles)	-----
Total	100


HOD
(Selvi B.Revathy)


JOINT DEAN
(Dr. V. Sangeetha)


DEAN
(Dr. V.Lavanya)


PRINCIPAL
(Dr. N. Kamala)

SRI SARADA COLLEGE FOR WOMEN
(An Autonomous Institution)

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)
Institution recognized u/s 2(f) and 12(B) of UGC & Reaccredited with “A” grade by NAAC
(A branch of Sri Ramakrishna Tapovanam, Tirupparaithurai)
Ariyakulam, Thoothukudi NH, Maharaja Nagar Post, **TIRUNELVELI – 627 011**

DEPARTMENT OF PHYSICS - UG
Course Structure (2019-2022)

Sem	Part	Category	Course code	Course title	Hours/week		T	Credits
					L	P		
1	I	Language	19P1TA1 /19P1SA1	Tamil /Sanskrit	6		6	4
1	II	English	19P2EA1	General English - 1	6		6	4
1	III	Core -1	19UPHC11	Mechanics and Relativity	4		4	3
1	III	Core – 2	19UPHC12	Properties of Matter and Acoustics	4		4	4
1	III	Allied	19UMAA11	Algebra and Differential Equations	6		6	4
1	IV	Common	19UCES11	Environmental Studies	2		2	2
1	III	Core Practical - 1	19UPHCL11	Non Electronics Practicals – I		2	2	2
1	III	Allied*	19UPHA11*	Allied Physics–I(ForMathematics)*	4		4	3*
1	III	AlliedPractical – 1*	19UPHAL11*	Allied Physics Practicals – I (ForMathematics)*		2	2	1*
Sub Total					28	2	30	23
2	I	Language	19P1TA2 /19P1SA2	Tamil/Sanskrit	6		6	4
2	II	English	19P2EA2	General English - 2	6		6	4
2	III	Core -3	19UPHC21	Thermal Physics and Statistical Mechanics	4		4	3
2	III	Core -4	19UPHC22	Optics	4		4	4
2	III	Allied	19UMAA21	Vector Calculus and Fourier Series	6		6	4
2	IV	Common	19UCVE21	Value Based Education	2		2	2
2	III	Core Practical - 2	19UPHL21	Non Electronics Practicals – II		2	2	2
2	III	Allied*	19UPHA21*	Allied Physics – II (ForMathematics)*	4		4	3*
2	III	AlliedPractical – 2*	19UPHAL21*	Allied Physics Practical – II (ForMathematics)*		2	2	1*
Sub Total					28	2	30	23
3	I	Language	19P1TA3 /19P1SA3	Tamil /Sanskrit	6		6	4
3	II	English	19P2EA3	English	6		6	4
3	III	Core -5	19UPHC31	Electricity	4		4	3
3	III	SkillBased - 1	19UPHS31	Maintenance of Electrical and Electronic Equipments	4		4	2
3	III	Allied	19UCHA11	Basic Concepts in Chemistry	4		4	3
3	IV	Non-MajorElective	19UNPH3A / 19UNPH3B	Basic Physics-I / Applied Physics	2		2	2
3	VI	Core Practical - 3	19UPHCL31	Non Electronics Practical – III		2	2	1
3	III	AlliedPractical - 1	19UCHAL11	Inorganic Quantitative Analysis		2	2	1
3	IV	Common	19UCYP31	Yoga Theory and Practices				1
3	III	Allied*	19UPHA31*	Allied Physics-I (For Chemistry)*	4		4	3*
3	III	AlliedPractical – 1*	19UPHAL31*	Allied Physics Practical – I (For Chemistry Students)*		2	2	1*
Sub Total					26	4	30	21
4	I	Language	19P1TA4/19P1SA4	Tamil /Sanskrit	6		6	4
4	II	English	19P2EA4	English	6		6	4
4	III	Core -6	19UPHC41	Electromagnetism	4		4	4
4	III	Skill Based - 2	19UPHS41	Testing and Practical use of Electronic Components	4		4	2
4	III	Allied	19UCHA21	Advanced Topics in Chemistry	4		4	3
4	IV	Non-MajorElective	19UNPH4A / 19UNPH4B	Basic Physics-II / Space Physics	2		2	2
4	VI	Core Practical - 4	19UPHCL41	Non Electronics Practical – IV		2	2	2
4	III	AlliedPractical - 2	19UCHAL21	Inorganic Qualitative Analysis		2	2	1
4	IV	Common	19UCDE41	Computer for Digital Era				1
4	V	Common	19UNCC41/19UNSS41/19UYRC41/19URRC41/19UPESY41/19UCCC41/19USSS41/19UCGC41	Extension Activity (NCC/NSS,YRC/RRC/PESSY/CCC/SSS/CGC)				1
4	III	Allied*	19UPHA41*	Allied Physics-II (For Chemistry)*	4		4	3*
4	III	AlliedPractical – 2*	19UPHAL41*	Allied Physics Practical – II (For Chemistry)*		2	2	1*
Sub Total					26	4	30	24
5	III	Core-7	19UPHC51	Analog Electronics	4		4	4
5	III	Core-8	19UPHC52	Programming in C++	4		4	4
5	III	Core -9	19UPHC53	Atomic Physics	3		3	4
5	III	Core Elective	19UPHE51/19UPHE52	Numerical Methods/ Fundamentals of Spectroscopy	3		3	4
5	III	Core Practical - 5	19UPHCL51	Non Electronics Practical – V		4	4	2
5	III	Core Practical - 6	19UPHCL52	Electronics Practical		4	4	2
5	IV	Common	19UCPD51	Personality Development	2		2	1
5	III	Core - 10	19UPHCP51	Physics for Competitive Examination and Project	6		6	6
Sub Total					22	8	30	27
6	III	Core-11	19UPHC61	Digital Electronics	5		5	4
6	III	Core-12	19UPHC62	Quantum Mechanics	5		5	4
6	III	Core -13	19UPHC63	Nuclear Physics	4		4	4
6	III	Core-14	19UPHC64	Solid State Physics	4		4	4
6	III	Core -15	19UPHC65	Energy Physics	4		4	4
6	III	Core Practical - 7	19UPHCL61	Non Electronics & Electronics Practicals		4	4	2
6	III	Core Practical - 8	19UPHCL62	Computer Programming in C++ Practicals		4	4	2
Sub Total					22	8	30	24
Total					152	28	180	142

* Subjects are offered by the department






HOD **JOINT DEAN** **DEAN** **PRINCIPAL**
S.MAGARA JOTHI LAKSHMI **DR. V. SANGEETHA** **DR. N. LAVANYA** **DR. N. KAMALA**

Programme Outcomes (PO):

Pos describe what students are expected to know or able to do by the time of graduation. The Programme Outcomes of UG in Physics are:

At the end of the programme, the students will be able to do following things

- PO1 Understand the core concept of Physics subjects
- PO2 Acquire analytical and logical skill for research and Innovation
- PO3 Excel in Experimental and Theoretical Physics
- PO4 Trained to take up jobs in allied fields

Programme specific outcomes

- POS1 Gain the knowledge of Physics through theory and practicals
- POS2 Use modern tools, Models and Equipments
- POS3 Understand good laboratory practices and safety
- POS4 Develop research oriented skills
- POS5 Make aware and handle the sophisticated instruments/equipments
- POS6 The accumulation of facts of nature and the ability to link the facts to observe and discover the laws of nature
- POS7 The ability to use this knowledge to analyze new situations and learn skills, to find the solution for the future developments
- POS8 The ability to synthesize the acquired knowledge, understanding and experience for a better and improved comprehension of the physical problems in nature and to create new skills and tools for their possible solutions
- POS9 To develop the ability to apply the knowledge acquired in the classroom and laboratories to specific problems in theoretical and experimental Physics
- POS10 The ability to use modern instrumentation and laboratory techniques to design and perform experiments

 HOD S.MAGARA JOTHI LAKSHMI	 JOINT DEAN Dr. V. SANGEETHA	 DEAN Dr. N. LAVANYA	 PRINCIPAL Dr. N. KAMALA

UPH – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVEL – 627011
SEMESTER – I

Programme : B.Sc.	Subject : Physics
Course Code : 19UPHC11	Course Title : Mechanics and Relativity
Catagory : Core -1	Credits : 3 Hours: 4 hrs

Objective:

- To understand the concept of vectors and use of mathematical theorems in physics
- To study the behaviour of rigid body dynamics
- To analyse the performance of hydrostatic and hydrodynamics
- To Understand the negative result of Michelson- Morley experiment , Galilean and Lorentz transformation

Outcomes:

- On completion of the course, the student
- Identifies the materials suitable for construction of buildings, based on the moduli of elasticity.
 - Will have the knowledge about special and theory of relativity and dual nature of matter

Unit	Detailed syllabus (all units of same size and duration)	Hours
1	UNIT-I: VECTORS Vector analysis - components of a vector - gradient of a scalar point function-divergence and curl of vector point function- angular momentum as a vector-product of two vectors - work as a scalar product of two vectors - line, surface and volume integrals - Gauss divergence, Stokes and Green's theorems-Combined vector operation-Vector magnitude from initial and terminal points-Different types of vector	12
2	UNIT-II: CONSERVATION LAWS Laws of conservation of energy, linear momentum and angular momentum - work energy theorem - work done by gravitational force - work done by spring force - potential energy - conservative and non conservative forces - potential energy curve - centre of mass - Two body problem and reduced mass - central field motion - motion of planets in elliptical orbits - proof of Kepler's second and third laws - Rocket motion - systems of varying mass - multistage rocket-Centre of mass for distributed point masses-Centre of mass of two point masses-Motion of centre of mass.	12
3	UNIT-III: DYNAMICS OF RIGID BODIES Translational and rotational motion - Angular momentum and angular impulse - moment of inertia and radius of gyration - moment of inertia of a thin circular ring, solid sphere, solid cylinder. - parallel axis and perpendicular axis theorem - Compound pendulum - theory - equivalent simple pendulum - reversibility of centres of oscillation and suspension - determination of g and k -Newton's second law for rotation – torque,work, rotational kinetic energy and expression for power during rotation - Kinetic energy of rolling - Acceleration of a uniform body, rolling down an inclined plane. Precessional motion – Gyrostat-Rigidity, strightness and strength-Equilibrium of rigid bodies-types of equilibrium	12
4	UNIT-IV: HYDROSTATICS AND HYDRODYNAMICS Pressure and thrust - Thrust on a plane surface immersed in a liquid - centre of pressure - centre of pressure on a rectangular lamina, a triangular lamina. Laws of floatation - determination of meta centric height of a ship - steady and streamline flow - equation of continuity - energy of a fluid - Bernoulli's theorem – proof - Pitot's tube and venturimeter-hydrodynamic modelling-hydrodynamic in soils-hydrodynamic slugging	12
5	UNIT-V: RELATIVITY Introduction - Reference frames-inertial frames - the ether hypothesis - Michelson Morley experiment - Postulates of special theory of relativity - Lorentz transformation equations - Lorentz Fitzgerald contraction - time dilation - relativistic addition of velocities - velocity addition theorem - simultaneity - relativistic mass - relativistic momentum - mass energy equivalence. Relation between total energy, rest mass energy and momentum.	12

REFERENCE BOOKS

S.No	Title of the Book	Author	Edition & year	Publication
1	Mechanics and electrodynamics	Brig Lal, &Subraminam	15 th edition 2015	Chand & Co
2	Mechanics and mathematical physics	R.Murugesan	5 th Edition 2000	Chand & Co. Pvt. Ltd., New Delhi
3	Mechanics	D.S. Mathur	6 th Edition 2004	Chand & Co
4	Mechanics - Berkely physics	Charles Kittel	7 th Edition, 2006	Tata Mc Graw Hill Publication
5	Mathematical physics	Satya Prakash	8 th Edition, 2006	S Chand & Co. Pvt. Ltd.,

S. Magara Jothi Lakshmi *V. Sangeetha* *N. Lavanya* *N. Kamala*
HOD JOINT DEAN DEAN PRINCIPAL
S.MAGARA JOTHI LAKSHMI Dr. V. SANGEETHA Dr. N. LAVANYA Dr. N. KAMALA

UPH – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVEL – 627011
SEMESTER I

Programme : B.Sc. Subject : Physics
Course Code : 19UPHC12 Course Title : Properties of Matter And Acoustics
Category : Core -2 Credits : 4 Hours: 4 hrs

Objective:

- To classify materials based on their elastic properties
- To explain the concept of fluid dynamics and applications
- To understand the concepts of sounds

Out comes:

A student can

- Applies the properties of fluids like viscosity, surface tension etc., in daily life
- Understand concepts of acoustic comfort and better understanding of the theories used in building acoustics

Unit Detailed syllabus (all units of same size and duration) Hours

UNIT-I: ELASTICITY

Hooke's law - Stress-strain diagram - Elastic moduli-Relation between elastic constants - Poisson's Ratio-
 1 Expression for Poisson's ratio in terms of elastic constants - experimental determination of Poisson's ratio of rubber 12
 - Twisting couple on a cylinder -Work done in twisting a wire - Torsional pendulum - Static torsion method with scale and telescope - Determination of Rigidity modulus and moment of inertia - q , n and σ by Searles method -I - section grids

UNIT-II: BENDING OF BEAMS

- 2 Bending of beams - Expression for bending moment - Cantilever - Expression for cantilever depression and 12
 oscillations - theory and experiments - expression for period. Uniform bending and Non-uniform bending - theory and experiments

UNIT-III: FLUIDS

- 3 Surface Tension - Synclastic and anticlastic surfaces - Excess of pressure - application to spherical and cylindrical 12
 drops and bubbles - variation of surface tension with temperature - Jaegar's method. Capillary rise - Experimental determination of surface tension by capillary rise - angle of contact of mercury-Quincke's method. Viscosity - Rate flow of liquid in a capillary tube - Poiseuille's formula - Determination of coefficient of viscosity by capillary flow - Variations of viscosity of a liquid with temperature- lubricants - production and measurement of low pressure – State and proof the Bernoulli's theorem.

UNIT-IV: SOUND

- 4 Sound - Simple harmonic motion - free, damped, forced vibrations and resonance -Helmholtz resonator-laws of 12
 transverse vibration of strings - Sonometer-Determination of AC frequency using sonometer - Determination of frequency using Melde's apparatus. Decibels - Intensity levels - musical notes - musical scale. Kundt's tube - Doppler effect.

UNIT-V: ULTRASONICS AND ACOUSTICS

- 5 Ultrasonics - production - Piezoelectric method-magnetostriction method- detection - properties – applications. 12
 Applications to science industry and medicine. Acoustics - Intensity level and loudness. Acoustic aspects of halls and auditoria. Acoustics of buildings: Reverberation - reverberation time - derivation of Sabine's formula - determination of absorption coefficient - optimum reverberation time-factors affecting acoustics of buildings- sources of noises and its control-sound level meter

REFERENCE BOOKS

S.No	Title of the Book	Author	Edition & year	Publication
1	Properties of matter	Murugeshan	5 th edition 1994	R, S Chand & co Pvt Ltd
2	Text book of sound	Brij Lal & Subramaniam	2 nd edition 2008	N Vikas Publishing House
3	Elements of Properties of Matter	Mathur D S	5 th edition 1994	Shyamlal Charitable Trust, New Delhi
4	Fundamentals of General Properties of Matter	Gulati H R	1st edition 1982	Chand & Co. New Delhi,
5	Waves & Oscillations	Subrahmanyam N & Brij Lal	2 nd edition 2018	Vikas Publishing House Pvt. Ltd., New Delhi,






HOP JOINT DEAN DEAN PRINCIPAL
S.MAGARA JOTHI LAKSHMI Dr. V. SANGEETHA Dr. N. LAVANYA Dr. N. KAMALA

UPH – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVEL – 627011
SEMESTER I

Programme : B.Sc.	Subject : Physics
Course Code : 19UPHA11	Course Title : Allied Physics – I (For Mathematics)
Catagory : Allied	Credits : 3 Hours: 4 hrs

Objective:

- To understand the elastic behaviours of the materials and to understand the concept of surface tension and viscosity
- To understand the concepts in the various branches of physics particularly to in sound, thermal physics and Optics.

Outcomes:

- Identifies the materials suitable for construction of buildings, based on the moduli of elasticity.
- Applies the properties of fluids like viscosity, surface tension etc., in daily life.
- A student can get knowledge of thermodynamics and awareness regarding the heat engine
- The study of phenomena interference, diffraction, and polarization lays the foundation for an understanding of concepts such as as holograms, interferometers

Unit	Detailed syllabus (all units of same size and duration)	Hours
1	Unit I : Elasticity and bending moment Hooke’s law – Elastic moduli - Relation between elastic constants — Expression for bending moment - uniform bending- non uniform bending- .Experiment to determine Young’s modulus using pin and microscope- - Twisting couple of a wire – Expression for couple per unit twist – Work done in twisting – Experimental determination of rigidity modulus of a wire using Torsion pendulum with theory	12
2	Unit II: Surface tension and Viscosity Surface tension – Definition – Examples – Illustrations to the phenomenon of surface tension - Molecular interpretation – Expression for excess of pressure inside a synclastic and anticlastic surface- Application to spherical and cylindrical drops and bubbles. Viscosity: Coefficient of viscosity – Newton’s law of viscous flow for streamline motion - Rate of flow of liquid in a capillary tube (Poisueuille’s formula) – Analogy between liquid flow and current flow – Stokes’ formula for highly viscous liquids (Dimension method) – Experimental determination of viscosity of highly viscous liquid (stokes’ method)	12
3	Unit III: Sound Simple harmonic motion – Free, damped ,forced vibrations and resonance – Composition of two SHMs along a straight line and in perpendicular direction – Melde’s string experiment – Determination of frequency of tuning fork(both longitudinal and transverse mode) – Sabin’s formula and derivation.	12
4	Unit IV : Thermal physics Zeroth law I and II law of thermodynamics, Mean free path- Expression for mean free path (Zero order approximation) – Transport phenomena – Expression for viscosity and thermal conductivity – Conduction in solids – coefficient of thermal conductivity – Lee’s disc method to determine thermal conductivity of a bad conductor – Wiedmann – Franz’s law – Convection : Newton ‘s law of cooling – Experimental verification – Radiation : Black body radiation – Distribution of energy in black body spectrum – Important features - Planck’s Law of radiation (only definition)	12
5	Unit V: Optics Interference: Condition for interference-Air wedge-determination of thickness of a thin wire by air wedge. Diffraction: Fresnel & Fraunhofer diffraction-Plane diffraction grating- theory and experiment to determine wavelength (normal incidence). Polarization: Double refraction- half wave and quarter wave plate – Production and detection of plane, elliptically and circularly polarized light.	12

REFERENCE BOOKS

S.No	Title of the Book	Author	Edition & year	Publication
1	Optics	Brijlal & Subramanian	2 nd edition 2006	S Chand & Co., New Delhi
2	Properties of matter	R.Murugesan	5 th edition 1994	
3	Heat and thermodynamics	Brijlal & Subramanian,	7 th edition 2007	S Chand & Co., New Delhi
4	Fundamentals of Optics	Jenkins A Francis and White E Harvey	1 st edition 1976	McGraw Hill Inc., New Delhi
5	Heat and Thermodynamics	D.S.Mathur	4 th edition 2001	Sultan Chand & Sons, New Delhi
6	Text book of Sound	V.R.Khanna and R.S.Bedi,	1st edition 1998	Kedharnaath Publish & Co, Meerut


HOD
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UPH – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVEL – 627011
SEMESTER – I

Programme : B.Sc.	Subject : Physics
Course Code : 19UPHCL11	Course Title : Non Electronics Practicals –I
Catagory : Core Practical -I	Credits : 2 Hours: 2 hrs

Objectives:

➤ To develop the practical skills by applying the laws and concepts in physics experiments.

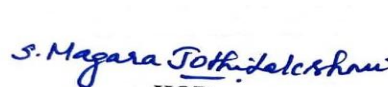
Outcomes:

➤ To apply the theories learnt and the skills acquired to solve real time problems.

➤ Apply knowledge of mathematics and physics fundamentals and an instrumentation to arrive solution for various problems.

(8 experiments compulsory)

1. Youngs modulus - non uniform bending - pin and microscope
2. Youngs modulus - uniform bending - optic lever and telescope
3. Youngs modulus - cantilever – depression
4. Torsional pendulum -Rigidity modulus and moment of inertia (with & without masses)
5. Co-efficient of viscosity-Stoke’s method
6. Surface tension – Capillary rise.
7. Sonometer – Verification of laws
8. Sonometer- determination of AC frequency
9. Compound pendulum - g and I
10. Melde’s string – determination of frequency- transverse and longitudinal modes

 HOD S.MAGARA JOTHI LAKSHMI	 JOINT DEAN Dr. V. SANGEETHA	 DEAN Dr. N. LAVANYA	 PRINCIPAL Dr. N. KAMALA

UPH – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVEL – 627011
SEMESTER – I

Programme : B.Sc.	Subject : Physics
Course Code : 19UPHAL11	Course Title : Allied Physics Practials-I (For Mathematics)
Catagory : Allied Practical -1	Credits : 1 Hours: 2 hrs

Objectives:

- To develop the practical skills by applying the laws and concepts in physics experiments.

Outcomes:

- Understand the application side of the experiments
- Use of basic laws to study the spectral properties and optical properties of the given prism
(8 experiments compulsory)

1. Youngs modulus - non uniform bending - pin and microscope
2. Youngs modulus - uniform bending - optic lever and telescope
3. Torsional pendulum -Rigidity modulus
4. Co-efficient of viscosity-Stokes method
5. Co-efficient of viscosity-variable pressure head
6. Thermal conductivity of a bad conductor - Lee’s disc method.
7. Spectrometer –dispersive power
8. Spectrometer - grating - -normal incidence method.
9. Air wedge - thickness of a wire
10. Melde’s string-frequency of tuning fork


HOD
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SEMESTER II

Programme : B.Sc.	Subject : Physics
Course Code : 19UPHC21	Course Title : Thermal Physics And Statistical Mechanics
Catagory : Core-3	Credits : 3 Hours: 4 hrs

Objective:

- To understand the principles & laws of thermodynamics which has wide applications
- To understand the primary concepts of two forms of energy-heat and work
- To know heat transfer with conduction, convection and radiation
- To apply the principles of statistical mechanics to selected problems

Outcomes:

- Create knowledge of thermodynamics and awareness regarding the heat engine.
- To be able to state the First Law and to define heat, work, thermal efficiency and the difference between various forms of energy
- Acquainted the main mathematical methods used in physics

Unit	Detailed syllabus (all units of same size and duration)	Hours
	LOW TEMPERATURE PHYSICS	
1	Joule - Kelvin effect - liquefaction of hydrogen - liquefaction of helium-Kammerling - Onne's method - Helium I and II - Lambda point - production of low temperatures - adiabatic demagnetization - practical applications of low temperature - refrigerators and air-conditioning machines - super fluidity - application of super fluidity-pressure exerted by a gas-law of equipartition of energy-application of law of equipartition specific heat of a gas.	12
	KINETIC THEORY OF GASES	
2	Kinetic theory of gases-Expression for pressure-gas laws-Maxwell's law of distribution of molecular velocities - Transport phenomena - Diffusion , viscosity and thermal conductivity of gases – Van der walls equation of state - Determination of Van der walls constant - Relation between Van der Wall's constant and critical constants-phenomenon of superconductivity-low temperature phenomena-equilibrium properties.	12
	THERMODYNAMICS I	
3	Zeroth law, I and II law of thermodynamics - isothermal process-adiabatic process-gas equation during adiabatic process - work done during adiabatic and isothermal process - Carnot's theorem - significance - thermodynamic scale of temperature - perfect gas scale of temperature - Carnot's engine - Otto engine and Diesel engine - working and efficiency-thermodynamics state variables-thermal equilibrium-thermodynamic process.	12
	THERMODYNAMICS II	
4	First latent heat equation (Clausius - Clapeyron equation) - effect of pressure on melting point and boiling point - second latent-heat equation - III law of thermodynamics - concept of entropy - temperature entropy diagram - entropy of perfect gas - Maxwell's thermo dynamical relations - derivation - applications - Clausius - Clapeyron equation and specific heat relation-Carnots ideal heat engine-efficiency of Carnot engine-Mayers relation	12
	STATISTICAL MECHANICS	
5	Concept of probability – Stirling's formula - microstate - macrostate -thermodynamic probability - phase space - Maxwell-Boltzmann, Bose - Einstein and Fermi-Dirac Statistics distribution law - Fermi energy level - Bosons and fermions – comparison-probability amplitude-information entropy-Gibbs state	12

REFERENCE BOOKS

S.No	Title of the Book	Author	Edition & year	Publication
1	Heat and thermodynamics	Brijlal and Subramaniam	2 nd edition 2006	S Chand & Co
2	Thermal Physics	R Murugesan and Kiruthiga Sivaprasad,	1 st edition 2002	S Chand & Co., New Delhi
3.	Elementary Statistical mechanics	Gupta and Kumar	Reprint 2017	Pragati Prakashan, Meerut
4.	Statistical mechanics	Sathya Prakash and J P Agarwal	2 nd edition 2010	Kedar Nath & Ram Nath & Co., Meerut
5	Heat and thermodynamics -	J B Rajam,	1 st edition 2000	S Chand & Co., New Delhi

			
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SEMESTER II

Programme : B.Sc.	Subject : Physics
Course Code : 19UPHC22	Course Title : Optics
Catagory : Core-4	Credits : 4 Hours: 4 hrs

Objective:

- To make students understand the basic concepts of Geometrical optics
- To shift the emphasis from geometrical optics to physical optics which account for important phenomena such as interference, diffraction, and polarization.
- To explore the theory of light amplification and lasers.
- To introduce the concepts of spectroscopy

Outcomes:

- The knowledge of geometric optics is helps in the practical design of many optical systems and instruments including aberrations in lens system.
- The study of phenomena interference, diffraction, and polarization lays the foundation for an understanding of concepts such as as holograms, interferometers.
- The knowledge of Spectroscopy helps to extract the dynamic information about the molecule

Unit	Detailed syllabus (all units of same size and duration)	Hours
1	UNIT-I: GEOMETRICAL OPTICS Introduction - chromatic and spherical aberration in lenses and their removal – simple problem’s on combination of thin lenses, eyepieces- Dispersion of light - Refraction through a thin prism - Dispersive power of a prism - deviation without dispersion - dispersion without deviation - constant deviation spectroscope. Eyepieces - Huygen , Ramsden and Gauss eyepieces – A planatic points - oil immersion objective - prism binocular	12
2	UNIT-II: INTERFERENCE Condition for observing interference, degree of coherence and visibility. Analytical treatment of interference - theory of interference fringes - interference in thin films due to reflected light - Air wedge - experiment to find thickness of a wire - Testing the plainness of surfaces – Newton’s rings-theory and experiment- Michelson’s interferometer and applications	12
3	UNIT-III: DIFFRACTION (Fresnel and Fraunhofer) Diffraction by single slit and determination of intensity distribution by phasor method - Diffraction by circular aperture - plane transmission grating- diffraction at normal and oblique incidence - Limit of resolution and resolving power-Rayleigh Criterion for resolution - Resolving power of a plane diffraction grating and prism - Fresnel wave front and theory of half period zones - zone plate-comparison with convex lens - comparison between Fresnel and Fraunhofer diffraction. Biquartz and Laurent’s half-shade polarimeters.	12
4	UNIT-IV: POLARIZATION AND FIBRE OPTICS Double refraction - Nicol Prism as polarizer and analyser-unpolarized, polarized and partially polarizes lights. Half and quarter wave plates - production and detection of plane, elliptically and circularly polarized light - Quarter and half wave plates - optical activity Fresnel’s theory of optical activity - Dichroism. Optical fibre and principles of fibre optics - acceptance angle - numerical aperture expression - step index optical fibre- single mode and multimode step index optical fibres characteristics.	12
5	UNIT-V: LASER AND ITS APPLICATIONS Principle of laser - Basic ideas about laser emission - spontaneous emission - stimulated emission - threshold condition (Schawlow and Townes equations) - rate equation - optical excitation-three and four level lasers. Types of lasers - semiconductor diode lasers - dye laser-nitrogen and carbon - di- oxide lasers - Holography – and its applications	12

REFERENCE BOOKS

S.No	Title of the Book	Author	Edition & year	Publication
1	Optics	Subramaniam N , Brij Lal &Avadhanulu	25 th Edition 2012	Chand & Co. Pvt. Ltd., New Delhi,
2	Laser and nonlinear optics	B.B.Laud	2nd edition 1991	Wiley Eastern Ltd.,
3	Optic fibre and fibre optic communication systems-	Subirkumarsankar-.	2 nd edition 2007	S Chand & Co. Pvt. Ltd., New Delhi
4	Fundamentals of Optics	Raj M G	4 th edition 2017	Anmol Publications , New Delhi


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SEMESTER II

Programme : UG	Subject : Physics
Course Code : 19UPHA21	Course Title : Allied Physics –II (For Mathematics)
Category : Allied	Credits : 3 Hours: 4 hrs

Objective:

- To acquire knowledge about electric field, magnetic field and the relation between the two.
- To acquire knowledge on static properties of nuclei and nuclear models
- To explain how the transistor can be used to amplify the signal and to understand the basics of digital electronics

Outcomes:

- demonstrate and apply electromagnetic induction in daily life
- understand on the basics of nuclear physics that treats atomic nuclei as self-bound many-body quantum systems
- Have sound knowledge of the operating principles of special semiconductor devices.

Unit	Detailed syllabus (all units of same size and duration)	Hours
1	Electricity Current and current density – Expression for current density – Ohm’s law – Resistors in series and in parallel – I-V characteristic of a resistor – Color coding – Conversion of a galvanometer into an ammeter and voltmeter – Kirchoff’s laws – Application of Kirchoff’s laws in Wheatstone network – sensitiveness of bridge. Potentiometer- Measurement of potential difference and current.	12
2	Electromagnetism Magnetism: Definition of magnetic induction B, Magnetic field intensity H , Intensity of magnetization M – Relation connecting M, B and H – Magnetic permeability μ and magnetic susceptibility K – Relation between μ and K –classification of magnetic materials- Properties of Dia, Para and Ferro magnetic materials. Electromagnetism: Faraday’s law of electromagnetic induction – Lenz’s law – Expression for induced current and charge – Self inductance – Self inductance of a long solenoid – Determination of self inductance by Rayleigh’s method –Mutual inductance – Coefficient of coupling – Expression for co-efficient of coupling . Determination of mutual inductance using BG.	12
3	Electronics Junction diodes-forward and reverse bias-diode characteristics- Zener diode – I -V characteristic of a Zener diode – Transistors-symbols, Transistor action- Transistor as an amplifier- Three modes of transistor connections - Characteristics of a transistor(common emitter mode only). Comparison of three modes Digital Electronics: Decimal and binary numbers – binary to decimal and decimal to binary- Binary addition – Binary subtraction by 1’s and 2’s complement method – Basic logic gates OR, AND and NOT universal NAND, NOR gates, EX-OR gate– De Morgan’s theorem.	12
4	Nuclear physics Introduction – Nuclear structure- different shapes of nuclei– General properties of nucleus – Nuclear size, Nuclear mass, Nuclear density, Nuclear charge, Nuclear spin & Nuclear magnetic dipole moments – Mass defect – Binding energy - Binding energy curve – Nuclear forces – Properties – nuclear fission and nuclear fusion- Fundamental laws of radioactivity – Soddy Fajan’s displacement law – Law of radioactive disintegration – Half life period – The mean life.	12
5	Mechanics and Relativity Projectiles – angle of projection, velocity of projection, point of projection-Time of flight – Range on the horizontal plane – Greatest height attained by the projectile – Path of the projectile– Range on an inclined plane – Relativity: Frames of references – Postulates of special theory of relativity – Galilean & Lorentz transformation equations – Length contraction – Time dilation.	12

REFERENCE BOOKS

S.No	Title of the Book	Author	Edition & year	Publication
1	Electricity and Magnetism	R.Murugesan	5 th edition, 2011	S.Chand &Co
2	Modern physics	R.Murugesan and Kiruthiga sivasanth	7 th edition 2010	S.Chand &Co
3.	Principle of Electronics	V.K.Mehta & Rohit Mehta	Revised edition 2014	S.Chand &Co
4	Modern Physics	Seghal Chopra & Seghal,	1 st edition 1998	Sultan chand
5	Electricity and Magnetism	K.K.Tiwari	First edition 1995	S.Chand &Co.


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SEMESTER – II

Programme : B.Sc.	Subject : Physics
Course Code : 19UPHL21	Course Title : Non Electronics Practical -II
Catagory : Core Practical-2	Credits : 2 Hours: 2 hrs

Objectives:

- To develop the practical skills by applying the laws and theory concepts in physics experiments.

Outcome:

- Obtain the knowledge in electrical, light and heat experiments.
- Use of basic laws to study the spectral properties and optical properties of the given prism and grating.

(8 experiments compulsory)

1. Specific heat capacity of liquid – Newton’s law of cooling
2. Thermal conductivity of a bad conductor - Lee’s disc method.
3. Callender and Barnes continous flow calorimeter- specific heat capacity of liquid
4. Spectrometer – dispersive power of prism
5. Spectrometer – refractive index of liquid
6. Spectrometer - grating - N and λ -normal incidence
7. Spectrometer - grating – **oblique** incidence - dispersive power
8. Air wedge - thickness of a wire and thickness of enamel coating.
9. Newton’s rings-refractive index
10. Thermal conductivity –Searle’s apparatus

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SEMESTER – II

Programme : B.Sc.	Subject : Physics
Course Code : 19UPHAL21	Course Title : Allied Physics Practical-II (For Mathematics)
Catagory : Allied Practical-2	Credits : 1 Hours: 2 hrs

Objectives:

- To develop the practical skills by applying the laws and theory concepts in physics experiments.

Outcomes:

- Gain knowledge in the scientific methods and learn the process of measuring different Physical variables
- Use standard methods to calibrate the given low range voltmeter and ammeter and to measure resistance of the given coil and various physical quantities.

(8 experiments compulsory)

1. Potentiometer-calibration of volt meter (low range)
2. Potentiometer - calibration of ammeter
3. Series resonance circuit
4. Parallel resonance circuit
5. Basic logic gates using discrete components –AND,OR,NOT
6. Zener diode Diode characteristics
7. Transistor characteristics (CE mode)
8. Absolute determination of mutual inductance -BG
9. Owen's bridge- Absolute determination of self inductance
10. Tangent galvanometer-Horizontal earth's magnetic induction

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SEMESTER III

Programme: B.Sc.	Subject: Physics		
Course code: 19UPHC31	Course Title: Electricity		
Category: Core -5	Credits: 3	Hours: 4 hrs	

Objectives:

- 1. To provide a basic knowledge about electricity and various methods of analyzing electric circuits using DC and AC sources.
- 2. To develop ideas about electricity from school level to a graduate level
- 3. To gain knowledge on how to design and characterize electric circuits

Unit	Detailed Syllabus	Outcomes	Hours
1	Electric field and potential Introduction-electric charge- coulomb’s law-electric field- lines of force- electric flux-Gauss’s law-applications- coulomb’s law from Gauss’s law- electric field at a point due to point charge- line charge- spherically symmetric charge distribution-sheet of charge. -electric potential- relation connecting electric field and potential- equipotential lines and surfaces -potential at a point due to point charge- collection of charges-dipole and charged spherical shell-electric potential energy	The students can 1. Derive the electric field due to a point charge using Coulomb’s Law 2. Use Gauss Law to calculate the electric field due to various configurations including: point charge line of charge, shell of charge, uniformly charged sphere, sheet of charge and a conducting shell. 3. Develop an understanding of electric potential by considering electric potential energy	12
2	Thermo electricity Seebeck effect- laws of thermo e.m.f- measurement of thermo e.m.f using potentiometer- Peltier effect- Peltier coefficient-demonstration- Thomson effect- Thomson coefficient- demonstration - thermodynamics of thermo couple –thermo electric power diagram – uses- applications- Application of thermodynamics to a thermocouple and expressions for Peltier and Thomson coefficients Thermoelectric diagram and uses	The students can 1. Understand Seebeck and Peltier effect 2. Understand the application of thermodynamics 3. Gain knowledge about Thermo electric diagram. 4. Know the concept about Thomson effect	12
3	Chemical effect of electric current Introduction - Electrical conductivity of an electrolyte- Faradays laws of electrolysis- electrical conductivity of an electrolyte-specific conductivity- Kohlrausch’s bridge method of determining the specific conductivity of an electrolyte -Arrhenius theory of electrolytic dissociation- mobility of ions- Secondary cells- Gibbs –Helmholtz equation for a reversible cell- calculation of e.m.f of a Daniel Cell.	The students can 1. Get ideas about electrolyte and electrolysis 2. Understand the Faraday’s laws of electrolysis 3. Determine the specific conductivity of electrolyte using Kohlrausch’s bridge	12
4	Steady current and transient current Current and current density-ohm’s law in vector form- conversion of galvanometer into voltmeter and ammeter- kirchoff’s law-application to wheat stone’s network Growth and decay of current in a circuit containing L and R with D.C.voltages - growth and decay of charge in a capacitance, resistance circuit- Growth and decay of current in a circuit containing resistance and inductance-Growth and decay of charge in a circuit containing resistance and capacitor- determination of high resistance by leakage- growth and decay of charge in LCR circuit – conditions for the discharge to be oscillatory –frequency of oscillations.	The students can 1. Get basic ideas about current and current density 2. Know how to convert Galvanometer into voltmeter and ammeter 3. Know about Wheat stone’s network and Kirchoff’s law 4. Acquire knowledge about growth and decay of current in a circuit containing L, C and R	12
5	Alternating current Alternating Current- j operator method–use of j operator–Resistance - Inductance - Capacitance -AC through an inductance and resistance in series- capacitance and resistance in series – LCR series resonance circuit -sharpness of resonance-parallel resonance circuit - power -power factor.	The students can 1. Understand the sharpness of resonance for series and parallel resonance circuit 2. Know how to use j operator in an AC circuit 3. Understand about the power produced in AC circuit	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Electricity and Magnetism	R. Murugesan	2015 (8)	S. Chand and Company Ltd

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Electricity and Magnetism	D.C. Tayal	2017 (4)	Himalaya Publishing House
2	Electricity and Magnetism	D.N.Vasudeva	2000 (12 revised)	S Chand
3	Fundamentals of Physics	D Halliday, R Resnick and J Walker	2001 (6)	Wiley


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Programme: B.Sc.	Subject: Physics
Course code:19UPHS31	Course Title: Maintenance of Electrical and Electronic Equipments
Category: Skill based -1	Credits: 2 Hours: 4 hrs

Objectives:

1. To enable the students to understand the operations and safe handling of certain commonly used domestic appliances.
2. To get basic knowledge about electricity and magnetism.
3. To gain knowledge on how to design and troubleshoot electrical circuits

Unit	Detailed Syllabus	Outcomes	Hours
1	Electrical components Study of electronic components - resistors - types - characteristics - materials used for resistors - resistors general specification: - maximum power rating, tolerance - temperature co-efficient - colour coding – wattage rating- potential divider arrangement-capacitors- Classification of capacitors, materials used for capacitors, capacitors specification:- capacitor working voltage, fixed capacitor- capacitive reactance - Groove board, breadboard and printed circuit board	The students can 1. get a basic understanding of the electrical and electronic equipments 2. know about resistors and their types 3. know more about capacitor and their types	12
2	Measuring instruments Basics of Measurements: Accuracy, Precision, resolution, reliability, repeatability, validity, Errors and their analysis, Standards of measurement. Bridge Measurement: DC bridges- wheat stone bridge, AC bridges – Kelvin, Hay, Maxwell, Schering and Wien bridges, Wagner ground Connection. Electronic Instruments for Measuring Basic Parameters: Amplified DC meter, AC Voltmeter, True- RMS responding Voltmeter, Electronic multi-meter, Digital voltmeter, Vector Voltmeter.	The students can 1. understand how to measure resolution, reliability and repeatability 2. gain in-depth knowledge about wheat stone bridge 3. Get familiar idea with voltmeter and their different types	12
3	Transducers Classification of transducers-basic requirements/characteristics of Transducers- Classifications of transducers-primary & secondary, active & passive, analog and digital transducers - resistive (Potentiometer - Theory - temperature compensation & applications) - Capacitive (variable air gap type) - Inductive (LVDT)& piezoelectric transducers	The students can 1. get a depth knowledge about transducers 2. get basic knowledge about piezoelectric transducers 3. get knowledge about resistive, capacitive and inductive transducers	12
4	Communication devices Basic concepts of radio transmitter and receiver – Different types of modulation - TV antennas-resonance antennas and their characteristics - Dipole antenna - Folded dipole - Yagi antenna - Yagi antenna design - Video CD player - Dish antenna - DTH system - Mobile communication system - MODEM. Telephone systems-cellular Telephone systems- FAX- mobile phone-principle of operation-integrated services-digital networks (ISDN)	The students can 1. know about the basic ideas about different types of modulation 2. know more about antennas and their types 3. gain in depth knowledge about MODEM	12
5	Display methods and recorders Display methods and devices – different types of recorders – galvanometric recorders – pen driving system– magnetic recorders - Magnetic disk and tape - Recorders – digital recorders- digital plotters and printers, CRT display, digital CRO, LED, LCD & dot matrix display- digital storage oscilloscope-Data Loggers.	The students can 1. know about general introduction to recorders and their types 2. get a basic knowledge on CRO, LED, LCD 3. understand about digital storage oscilloscope	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Basic Electronics	R. Murugesan	2010 (2)	S Chand & Co
2	Text book-A course in Electrical & Electronics Measurement and Instrumentation	A K. Sawhney, Puneet Sawhney	2004 (1)	Dhanpat Rai Publications

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Principles of Electronics	V K Mehta	2001 (5)	S Chand & Co
2	Functional Electronics	V.K. Ramanan	1984 (1)	McGraw-Hill Inc.
3	Integrated electronics	K.K. Tewari	1995 (Revised)	S. Chand Publishing,
4	Electronic principles	Halliday Rhennick Walker	(6)	Wiley

   
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SEMESTER III

Programme : B.Sc.	Subject : Physics
Course Code : 19UPHA31	Course Title : Allied Physics – I (for chemistry Students)
Category : Allied	Credits : 3 Hours : 4 hrs

Objectives:

- 1.To understand the elasticbehaviours of different materials
- 2.To understand the concept of surface tension and viscosity
- 3.To understand the concepts in the various branches of physics particularly in sound, thermal physics and Optics.

Unit	Detailed syllabus	Outcomes	Hours
1	Elasticity and bending moment Hooke's law – Elastic moduli - Relation betweenelastic constants – Expression for bending moment - uniform bending- non uniform bending Experiment to determine Young's modulus using pin and microscope- Twisting couple of a wire – Expression for couple per unit twist – Work done in twisting – Experimental determination of rigidity modulus of a wire using Torsionpendulum with theory	The students can 1.understand the elastic behaviors of the materials 2. identify the materials suitable for construction of buildings, based on the moduli of elasticity	12
2	Surface tension and Viscosity Surface tension – Definition – Examples – Illustrations to the phenomenon of surface tension - Molecular interpretation – Expression for excess of pressure inside a synclastic and anticlastic surface-Application to spherical and cylindrical drops and bubbles. Viscosity: Coefficient of viscosity – Newton's law of viscous flow for streamline motion - Rate of flow of liquid in a capillary tube (Poisueuille's formula) – Analogy betweenliquidflow and current flow.	The students can 1. Understand the concept of surface tension andviscosity 2. Apply the properties of fluids like viscosity, surface tension etc., in dailylife 3. Determine the Viscosityof liquid	12
3	Sound Simple harmonic motion – Free, damped ,forced vibrations and resonance – Composition of two SHMs along a straight line and in perpendicular direction – Melde's string experiment – Determination of frequency of tuning fork(both longitudinal and transverse mode) – Sabin's formula andderivation.	The students can 1. know about the harmonic motion 2. know about the determination of frequency of a tuningfork 3.get knowledge aboutthe Sabin's formula and derivation	12
4	Thermal physics Zeroth law I and II law of thermodynamics, Mean free path- Expression for mean free path (Zero order approximation) – Transport phenomena – Expression for viscosity and thermal conductivity – Conduction in solids – coefficient of thermal conductivity – Lee's disc method to determine thermal conductivity of a bad conductor – Wiedmann– Franz's law – Convection : Newton 's law of cooling – Experimental verification – Radiation : Black body radiation – Distributionofenergy in black body spectrum	The Students can 1. Get knowledge of thermodynamics and awareness regarding the heat engine 2. Get knowledge about the conductivity ofmaterials 3. know about the Black body radiation	12
5	Optics Interference: Condition for interference-Air wedge-determination of thickness of a thin wire by air wedge. Diffraction: Fresnel & Fraunhofer diffraction-Plane diffraction grating- theory and experiment to determine wavelength (normal incidence).Polarization: Double refraction- half wave and quarter wave plate – Production and detection of plane, elliptically and circularly polarized light.	The Students can 1.acquire knowledge about diffraction 2.Have a knowledge on interference and its condition 3.know about the polarization and double refraction andtheir wave analysis	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Allied Physics-II	Dr. T. Balu, Dr. P.Selvarajan, r. R. Sreedevi, Dr. I.Sehar, Mrs.G.Vasuki	Nov 2019	S. Chand &Co

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Fundamentals of Optics	Jenkins A Francis and White E Harvey	1976 (1)	Mc G Raw Hill Inc., New Delhi
2	Heat and Thermodynamics	D. S. Mathur	2001 (4)	Sultan Chand & Sons, New Delhi
3	Text book of Sound	V.R. Khanna and R.S. Bedi,	1998 (1)	Kedharnaath Publish & Co, Meerut

   
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UPH-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVELI-627011
SEMESTER III

Programme: B.Sc.	Subject: Physics
Course code: 19UNPH3A	Course Title: Basic physics-I
Category: Non Major Elective	Credits: 2 Hours: 2 hrs

Objective:

1. To provide a basic knowledge in Physics for students who do not study physics as major/allied subject o introduce measures of central tendency to other major students.
2. To acquire knowledge about of Bernoulli's principle
3. To know how to measure heat and temperature.
4. To impact basic knowledge on effect of pressure on boiling point and melting point.

Unit	Detailed Syllabus	Outcomes	Hours
1	Mechanics Motion- speed, velocity, acceleration- force- equations of motion- Newton's law- momentum- work, power and energy- conservation of energy and momentum.	The students can 1.know about motion, acceleration and force 2.be familiar with Newton's laws 3.gain in depth knowledge about momentum	12
2	Properties of matter Diffusion- graham's law of diffusion- flick's law of diffusion- experimental determination of co-efficient of diffusion- surface tension- explanation of surface tension on kinetic theory- Bernoulli's principle- Pascal law- viscosity- Ostwald's viscometer.	The students can 1.be able to deal with the experimental determination of co-efficient of diffusion 2.know about a general introduction to surface tension 3.acquire the knowledge of Bernoulli's principle	12
3	Heat and sound Thermos flask- applications of heat radiations- kirchoff's laws of heat radiation- transmission of heat- co-efficient of thermal conductivity- change of state- latent heat of fusion- latent heat of vaporization. Sound	The students can 1.Know about thermos flask 2.get basic knowledge on kirchoff's laws of heat radiations 3.enhance their ideas on recording and reproduction of sound in films	12
4	Optics Reflection and refraction- concave and convex mirrors and lens- dispersion- spectra- rainbow- interference- diffraction- polarization- concepts with example- uses- double refraction- optical activity- quartz crystal.	The students can 1.know about a general introduction on refraction and reflection 2.know about dispersion 3.familiarize the basic concept of double refraction	12
5	Electricity Electric charge and field- electric potential- coulomb's law- current and current density- ohm's law and electrical conductivity- kirchoff's law- gauss law and its application- dielectric- constant- gauss law in dielectrics- electric displacement and susceptibility.	The students can 1. derive ohm's law 2. know more about gauss law and its applications 3. understand about kirchoff's laws	12

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Properties of matter	R. Murugesan	2005 (Revised)	S. Chand,
2	Electricity and magnetism	R.Murugesan	2015 (8)	S.Chand&Pvt.Ltd
3	Text book of sound	BrijLal &Subramaniam	(2 revised)	Vikas






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SEMESTER III

Programme: B.Sc.	Subject: Physics
Course code: 19UNPH3B	Course Title: Applied Physics
Category: Non Major Elective	Credits: 2 Hours: 2 hrs

Objective:

1. To provide a basic knowledge in Physics for students who do not study physics as major/allied subject o introduce measures of central tendency to other major students.
2. To acquire knowledge about energy sources.
3. To know about fossil fuels.
4. To impact basic knowledge on biomass energy and geothermal energy.

Unit	Detailed Syllabus	Outcomes	Hours
1	Conventional Energy Sources Conventional energy sources- World's reserve of conventional energy sources- various forms of energy- renewable and conventional energy systems- comparison.	The students can 1.know about conventional energy sources 2.be familiar with various forms of energy 3.gain in depth knowledge about renewable energy sources	12
2	Fossil Fuels Fossil fuels- coal, oil and natural gas- availability- statistical details- applications- merits and demerits	The students can 1.know about statistical details of fossil fuels 2.know about a general introduction to Fossil fuels 3.acquire the knowledge of applications of fuels	12
3	Biomass Energy Biomass energy-classification- conversion process- biogas plants- Deena bandhu model gas plant- wood gasification- advantages and disadvantages of biomass	The students can 1.Know about biomass energy 2.get basic knowledge on biogas plants 3.enhance their ideas on wood gasification	12
4	Renewable Energy Sources Renewable energy sources- solar energy- importance- storage of solar energy- solar pond- solar water heater- solar crop dryers- solar cookers- solar green house- solar cell	The students can 1.know about a general introduction on solar energy 2.know about renewable energy sources 3.familiarize the basic concept of solar water heater	12
5	Geothermal Energy Geothermal energy- power plant- wind energy and wind farms- wind mills- types- ocean thermal energy conversion- energy from tides- energy from waves	The students can 1. be familiar with geothermal energy 2. know more about wind mills 3. understand about ocean thermal energy conversion	12

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Non-Conventional energy sources	G.D Rai	2004 (3)	Khanna, Delhi
2	Solar energy	MP Agarwal	1983 (1 review)	S.Chand & Co
3	Solar energy	P Suhas	2010 (3)	Tata Mc Graw, Hill


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SEMESTER III

Programme: B.Sc.	Subject: Physics
Course code: 19UPHCL31	Course Title: Non Electronics Practical-III
Category: Core Practical-3	Credits: 1 Hours: 2 hrs

Objectives:

1. To get practical knowledge on physical concepts through experiments.
2. Gain knowledge about magnetic and electrical experiments.
3. To deliver concepts regarding calibration of ammeter and voltmeter experiments.

Any 8 experiments only

S. No	Name of Experiment	Outcome
1	Ballistic Galvanometer- Figure of merit	Students get knowledge about Ballistic Galvanometer
2	Ballistic Galvanometer- comparison of capacitance(c_1/c_2)	Students know how to compare two unknown capacitors using B.G.
3	Field along the axis of a coil carrying current- Deflection magneto meter-dipole moment of a bar magnet.	Students get Knowledge about magnetic experiment
4	Comparison of magnetic moments- Deflection Magnetometer (Tan A and Tan B position)	Students know about the TAN-A and Tan-B position and know about the magnetic moments
5	Series Resonance circuit	Students learn how to find resonance frequency using series resonance circuit contains L,C and R
6	De Sauty Bridge	Students understand to find the inductance of the coil using De Sauty Bridge
7	Potentiometer- Calibration of Ammeter	Students are able to calibrate the potentiometer using Ammeter
8	Potentiometer- Calibration of Voltmeter	Students can calibrate the potentiometer using Voltmeter
9	Acceleration due to gravity – Simple pendulum	Students can measure the acceleration due to gravity using a simple pendulum
10	Acceleration due to gravity and moment of inertia – compound pendulum	Students can determine acceleration due to gravity (g) at a place using compound pendulum
11	Rigidity modulus – Torsion pendulum	1. Students can find the moment of inertia of the disc and the rigidity modulus of the material of the suspension wire subjected to torsional oscillations 2. Students can assess the shear elastic behavior of a given material using torsional pendulum
12	Air wedge	Students can measure the diameter of a wire by an optical interference method

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Practical Physics and Electronics	C.C.Ouseph U.J. Rao, V.Vijayendran	2007	S.Viswanathan (Printers & Publishers .Pvt. Ltd)
2	Advanced Practical Physics – 1	Singh S.P	2003 (13)	PragathiPrakashan, Meerut
3	Advanced Practical Physics – 2	Singh S.P	2000 (12)	PragathiPrakashan, Meerut
4	Practical Physics	Gupta S.L. and V.Kumar	2002 (25)	PragathiPrakashan, Meerut

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UPH-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVELI-
627011 SEMESTER III

Programme: B.Sc.	Subject: Physics
Course code: 19UPHAL31	Course Title: Allied Physics Practical- I (For Chemistry Students)
Category: Allied Practical-1	Credits: 1 Hours: 2 hrs

Objectives:

- To develop the practical skills by applying the laws and concepts in physics experiments.

Outcomes:

- Understand the applications side of the experiments
- Use of basic laws to study the spectral properties and optical properties of the given prism

(8 experiments compulsory)

1. Young's modulus-non uniform bending- pin and microscope
2. Young's modulus-uniform bending-optic lever and telescope
3. Torsional pendulum-Rigidity modulus
4. Co-efficient of viscosity-Stokes method
5. Co-efficient of viscosity-variable pressure head
6. Thermal conductivity of a bad conductor-Lee's disc method.
7. Spectrometer-dispersive power
8. Spectrometer-grating--normal incidence method.
9. Air wedge-thickness of a wire
10. Melde's string-frequency of tuning fork

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SEMESTER IV

Programme: B.Sc.	Subject: Physics		
Course code:19UPHC41	Course Title: Electromagnetism		
Category: Core -6	Credits: 4	Hours: 4 hrs	

Objectives:

1. To understand the magnetic effects of electric currents and the basics of electromagnetic waves.
2. To impart knowledge about inductance of a coil, solenoid and toroid
3. To know about the applications of electromagnetism

Unit	Detailed Syllabus	Outcomes	Hours
1	Electromagnetic induction Faraday’s laws of electromagnetic induction- Lenz’s laws – Integral and differential forms of Faraday’s law– Mutual and Self Inductance - L of single coil, M of two coils- self induction-self inductance of a long solenoid –toroidal solenoid- determination of L by Anderson’s and Rayleigh’s methods- Owen’s bridge-mutual induction-experimental determination of mutual inductance between a pair of coils using BG-co efficient of coupling- energy stored in a coil-eddy currents-uses	The students can 1. Understand about Faraday’s law of electromagnetic induction 2. Know how to determine self induction by various methods 3. Gain knowledge about experimental determination of mutual inductance between pair of coil 4. Get brief ideas about Owen’s Bridge	12
2	Magnetic effect of electric current Magnetic flux and magnetic induction-relation between them- Biot Savart law and its application to simple systems viz., long straight wire carrying steady current Circular loop carrying steady current magnetic induction at a point on the axis of a circular coil carrying current- amperes circuital law-magnetic field inside a long solenoid -toroid- Lorentz’s force on a moving charge- direction of force-torque on a current loop in a uniform magnetic field -Helmholtz Galvanometer Theory of moving coil Ballistic Galvanometer - Damping correction- Moving coil Ballistic galvanometer-theory -De sauty bridge.	The students can 1. Get ideas about magnetic flux and magnetic induction and their relation between them 2. Be able to determine magnetic induction at a point on the axis of the coil 3. Get brief ideas about moving coil galvanometer 4. Gain experimental knowledge about how to determine absolute capacity and charge sensitivity of a capacitor	12
3	Magnetic fields and Maxwell’s equation The three magnetic vectors M, B, and H –relation between them permeability and susceptibility- relation between them -B-H curve –Hysteresis Energy loss- Equation of continuity- Displacement current-Maxwell’s equations-Boundary conditions- Maxwell’s equations in material media, plane electromagnetic waves in free space-Poynting vector- Electromagnetic waves in free space- Hertz experiment for production and detection of EM waves.	The students can 1. Be able to define relation between M,B and H 2. Determine of energy loss using B-H curve 3. Get basic ideas about Maxwell’s equation 4. Understand the basic mathematical concepts related to electromagnetic vector fields	12
4	Electromagnetic waves Types of EM waves-velocity of light- electromagnetic wave propagation through vacuum and isotropic dielectric medium- Wave equations for Electric field and Magnetic field- monochromatic plane waves- transverse nature of EM waves- polarization-EM waves in matter-Reflection and Transmission at normal incidence and oblique incidence- Polarization by reflection- Wave equation for EM wave in free space.	The students can 1. Know about types of EM waves 2. Know about propagation of EM waves through various medium 3. Get basic ideas about Polarization 4. Know about Reflection and transmission at normal and oblique incidence	12
5	Applications of electromagnetism Earth inductor - uses of earth inductor - measurement of horizontal component of the earth's magnetic field - measurement of vertical component of earth's magnetic field- calibration of B.G.- measurement of intense magnetic field using search coil and BG induction coil and its uses.	The students can 1. Get basic idea about Earth inductor 2. Measure horizontal and vertical component of Earth’s magnetic field 3. Measure induction magnetic field using Search coil	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Electricity and Magnetism	R. Murugesan	2000 (8)	S. Chand & Co

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Electricity and Magnetism	D.N.Vasudeva	1998 (10 revised)	S. Chand & Co
2	Electricity and Magnetism	K.K. Tiwari	1987 (1)	S. Chand & Co
3	Electricity and Magnetism (Physics Course)	E. M. Pourcel, Berkley	1986 (Vol.2)	Mc Graw-Hill
4	Electricity and Magnetism	D. C. Tayal	2014 (12)	Himalaya Publishing Co



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SEMESTER IV

Programme: B.Sc.	Subject: Physics		
Course code: 19UPHS41	Course Title: Testing and Practical use of Electronic Components		
Category: Skill based -2	Credits: 2	Hours: 4 hrs	

Objectives:

1. To provide an idea about handling of commonly used electronic equipments.
2. To understand about oscilloscopes.
3. To know how to measure voltage, current and resistance using multimeter.

Unit	Detailed Syllabus	Outcomes	Hours
1	Multimeter Practical use of Multimeter (measurement of voltage, current, resistance) Ground, virtual ground, AC ground power supply, concept of constant voltage source. Oscilloscope (voltage and frequency measurement) – AC/DC coupling, triggering, XY model figures.	The students can. 1. know how to measure voltage, current and resistance using multimeter 2. understand about oscilloscopes 3. learn the concept of constant voltage source	12
2	Electronic components Study of Electronic Components- Resistor – color coding, wattage rating, potential divider arrangement, capacitance – types, working voltage. Transistor as a switch- Clipping - clamping.	The students can gain the ideas about clipping and clamping know about electronic components learn, how to calculate the color code on resistor	12
3	Testing of electronic components Testing of electronic components: Diode, zenor, transistor, FET, Op amp, timer 555, gates 7400, 7402, 7404, 7408, 7432, Regulators 7805, 7809, 7909.	The students can 1. know about testing electronic components 2. learn about field effect transistor 3. study the different types of logic gates	12
4	Amplifier Construction on regulated power supply using series regulator or IC. Designing a voltage amplifier. Trouble shooting an audio amplifier.	The students can 1. learn how to construct on regulated power supply using series regulator or IC 2. know how to design a voltage amplifier 3. study about amplifier	12
5	Inverter Inverter – charging from mains, charging from mains or solar panel, TV panels, CRT, LCD, Plasma, LED	The students can 1. gain knowledge about inverter 2. be able to learn about LED, LCD and CRT 3. understand about TV panels	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Electronic principles	Malvino	2019 (7)	McGraw Hills
2	Integrated Electronics	Millman and halkies	2001 (2)	Tata McGraw-Hill Education

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Operational amplifier	Gyakwar	2020 (3)	Pearson Education India
2	Electronic communication system	George kenedy	2017 (5)	McGraw Hill Education


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SEMESTER IV

Programme	:B.Sc.	Subject	Physics
Course Code	:19UPHA41	Course Title:	Allied Physics-II (For Chemistry)
Category	:Allied	Credits	: 3
		Hours:	4 hrs

Objectives:

- 1. To acquire knowledge about electric field, magnetic field and the relation between those two.
- 2. To acquire knowledge on static properties of nuclei and nuclear models
- 3. To explain how the transistor can be used to amplify the signal and to understand the basics of digital electronics
- 4. To know how to measure the specific resistance of any conductor.

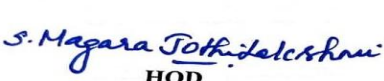
Unit	Detailed Syllabus	Outcomes	Hours
1	Electricity Current and current density – Expression for current density – Ohm’s law – Resistors in series and in parallel – I-V characteristic of a resistor – Color coding – Conversion of a galvanometer into an ammeter and voltmeter – Kirchhoff’s laws – Application of Kirchhoff’s laws in Wheatstone network – sensitiveness of bridge.	The students can 1. Estimate the specific resistance of any conductor 2. Convert galvanometer into ammeter and voltmeter 3. Know about kirchoff’s law and wheatstone network	12
2	Magnetism Magnetism: Definition of magnetic induction B, Magnetic field intensity H, Intensity of magnetization M – Relation connecting M, B and H – Magnetic permeability μ and magnetic susceptibility K – Relation between μ and K – classification of magnetic materials- Properties of Dia, Para and ferro magnetic materials	The students can 1. have profound knowledge in a special field such as magnetism 2. demonstrate and apply magnetic induction in daily life	12
3	Electronics Junction diodes-forward and reverse bias-diode characteristics- Zener diode – I -V characteristic of a Zener diode – Transistors-symbols, Transistor action- Transistor as an amplifier- - Characteristics of a transistor (common emitter mode only). Comparison of three modes. Digital Electronics: Decimal and binary numbers – binary to decimal and decimal to binary – Binary addition – Binary subtraction by 1’s and 2’s complement method – Basic logic gates OR, AND and NOT universal NAND, NOR gates, EX-OR gate – De Morgan’s theorem.	The students can 1. Have approximately specialized knowledge in a field of Basic logic gates and De Morgans theorem achieved through the work on a master thesis. 2. Compare OR, AND, NOT, NOR, NAND logic gates 3. find easy to learn, how to convert decimal to binary and binary to decimal, binary addition, binary subtraction, 1’s Complement	12
4	Nuclear physics Introduction – General properties of nucleus – Nuclear size, Nuclear mass, Nuclear density, Nuclear charge, Nuclear spin & Nuclear magnetic dipole moments – Mass defect – Binding energy - Binding energy curve – Nuclear forces – Properties – nuclear fission and nuclear fusion- Fundamental laws of radioactivity – Soddy Fajan’s displacement law – Law of radioactive disintegration – Half life period – The mean life.	The students can 1. Understand the concept of Soddy Fajan’s displacement law, Half life period, Mean period 2. Acquire the knowledge of General properties of nucleus, nuclear size, nuclear mass and nuclear charge 3. Understand the various forms of Binding energy, Binding energy curve	12
5	Mechanics and Relativity Projectiles – angle of projection, velocity of projection, point of projection- Time of flight – Range on the horizontal plane – Greatest height attained by the projectile – Path of the projectile– Range on an inclined plane – Relativity: Frames of references – Postulates of special theory of relativity – Galilean & Lorentz transformation equations – Length contraction – Time dilation.	The students can 1. Apply the laws of mechanics and describe the motion of a particle/ deduce the forces acting in a particle/system of particles 2. explain the postulates of special theory of relativity 3. Apply Lorentz transformation to describe the dynamics of particles in relativistic limit 4. Use fundamental ideas of special theory of relativity such as length contraction and time dilation and mass – energy invariance	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Allied Physics-II	Dr. T. Balu, Dr. P. Selvarajan, et al.	Nov 2019 (2)	S.Chand & Co

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Electricity and Magnetism	R. Murugesan	2011 (5)	S.Chand & Co
2	Modern physics	R. Murugesan and Kiruthiga siva prasanth	2010 (7)	S.Chand & Co
3	Principle of Electronics	V.K. Mehta & Rohit Mehta	2014 (Revised)	S.Chand & Co


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SEMESTER IV

Programme: B.Sc.	Subject: Physics
Course code: 19UNPH4A	Course Title: Basic physics-II
Category: Non- Major Elective	Credits: 2 Hours: 2 hrs

Objectives:

- 1. To gain basic knowledge about structure and properties of nucleus.
- 2. To understand the properties of alpha, beta and gamma rays
- 3. To get idea about different types of lasers
- 4. To know about the classification of magnetic materials-para,dia and ferro

Unit	Detailed Syllabus	Outcomes	Hours
1	Nuclear physics Introduction- classification of nuclei- general properties of nucleus- nuclear stability- nuclear forces- theories of nuclear composition- meson theory of nuclear forces- radioactivity- alpha, beta, gamma rays & theirproperties- nuclear isomerism- Mossbauer effect.	The students can 1.gain knowledge about nucleus 2.understand the properties of alpha, beta and gamma rays 3. know about Mossbauer effect	12
2	Magnetic materials Classification of magnetic materials- para, dia and ferro magnetic materials- properties- superconductors- London equation- energy gap- microwave and infrared absorptions-Langevin theory of diamagnetism- Langevin theory of para magnetism.	The students can 1.understandaboutmagneticmaterials 2.comparethediaandparamagnetism 3. Knowledge about superconductors	12
3	Lasers Introduction- absorption- spontaneous emission- stimulated emission- ruby laser- He-Ne laser- Semiconductor laser- properties of laser beam- CO ₂ laser- applications.	The students can 1. know the applications of LASERS 2.get Information about He-Ne 3.gain knowledge about LASER	12
4	Relativity Introduction-frames of references-special theory of relativity and their postulates-length contraction-timere dilation (no derivation)-the Lorentz transformation equation.	The students can 1.understand about special theoryof relativity and itspostulates 2. know frames of references 3.learn about lengthcontraction	12
5	Number systems Number system used in digital electronics- binary, decimal, hexadecimal and octal number systems- binary arithmetic in computers- binary addition, subtraction- 1's complement, 2's complement method.	The students can 1.get ideas about binary arithmetic 2.understand binary and decimal number systems 3. learn about 1's and 2's complement Methods	12

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Modern physics	R.Murugeshen	2015 (7)	S Chand
2	Mechanics and mathematical physics	R.Murugeshan	2016 (3)	S Chand
3	Electricity and magnetism	R.Murugeshan	2017 (10)	S Chand


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SEMESTER III

Programme: B.Sc.	Subject: Physics
Course code: 19UNPH4B	Course Title: Space Physics
Category: Non Major Elective	Credits: 2 Hours: 2 hrs

Objective:

- 1. To provide a basic knowledge in Physics for students who do not study physics as major/allied subject o introduce measures of central tendency to other major students.
- 2. To acquire knowledge about of Constellations.
- 3. To know about comets, meteors and asteroids.
- 4. To impact basic knowledge on solar flares.

Unit	Detailed Syllabus	Outcomes	Hours
1	Universe Planets- interior planets- exterior planets- crust, mantle and core of the earth- different region of earth’s atmosphere- rotation of the earth- magnetosphere- Van Allen belts- Aurora	The students can 1.know about planets 2.be familiar with magnetosphere 3.gain in depth knowledge about Aurora	12
2	Comets, Meteors, Asteroids Composition and structure of comets- periodic comets- salient features of asteroids, meteors and its use	The students can 1.be able to understand about periodic comets 2.know about a general introduction to meteors 3.acquire the knowledge of comets	12
3	Sun Structure of photosphere, chromospheres, corona- sunspots- solar flares- solar prominence- solar plages- satellites of planets- structure, phases and their features of moon	The students can 1.Know about photosphere 2.get basic knowledge on solar flares 3.enhance their ideas on satellites	12
4	Stars Constellations- binary stars- their origin and types star clusters- globular clusters- types of variable stars- types of galaxies	The students can 1.know about a general introduction on binary stars 2.know about globular clusters 3.familiarize the basic concept of constellations	12
5	Origin of Universe Big bang theory- pulsating theory- steady state theory- composition of universe expansion	The students can 1. be familiar with the concept of origin of universe 2. know more about big bang theory 3. understand about steady state theory	12

Study Material prepared by Department of Physics, Sri Sarada College for Women (Autonomous)

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Astrophysics of the solar system	K.D. Abyankar	1999	University press, india
2	An introduction to Astrophysics	Baidyanath Basu	(2)	Prentice hall of india, New Delhi
3	Elements of space physics	R.P. Singhal	2009	PHI

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SEMESTER IV

Programme: B.Sc.	Subject: Physics
Course code: 19UPHCL41	Course Title: Non Electronics Practical- IV
Category: Core Practical - 4	Credits: 2 Hours: 2 hrs

Objectives:

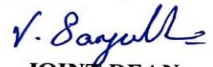
- 1. To measure the electromotive force (emf) and internal resistance of a dry cell.
- 2. To determine the resistance of a ballistic coil galvanometer by half deflection method.
- 3. To learn the theory of the prism spectrometer, and able to explain the functions of various components.

S. No	Experiments	Outcomes
1	Field along the axis of a coil carrying current- vibration magnetometer	The students can measure the electromotive force (emf) and internal resistance of a dry cell
2	Potentiometer- specific resistance	The Students get the idea of potentiometer apparatus and its Parts
3	Potentiometer- EMF of a thermocouple	The students to learn the arrangement of experimental set up for measurement of thermo-emf
4	Ballistic galvanometer- comparison of EMF's –E ₁ /E ₂	The students can understand the comparison of two cells
5	Ballistic galvanometer-high resistance by leakage	The students can determine the resistance of a ballistic coil galvanometer by half deflection method
6	Magnetic moment of a bar magnet- Tan C position	The students can determine the Magnetic moment of a given bar magnet
7	Parallel resonance circuit	The students can experimentally determine the resonance frequency in a series RLC circuit and compare this to the expected resonance value
8	Owen's bridge- inductance in series and Parallel	The students can determine the unknown resistance using Owen's bridge method
9	M and B _H - deflection and vibration Magnetometer	The students can determine the Magnetic moment of a given bar magnet using deflection and vibration magnetometer
10	Spectrometer- critical angle of the prism and refractive index	The students can determine the index of refraction of a glass prism for various wavelengths
11	Conversion of galvanometer into voltmeter &ammeter	Resistance of suspended coil galvanometer by half deflection method and hence the current sensitivity of the galvanometer
12	Self inductance - Anderson's bridge	The students can study for the physics experiments

Reference Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Practical Physics and Electronics	C.C.Ouseph U.J. Rao, V.Vijayendran	2007	S.Viswanathan (Printers & Publishers .Pvt. Ltd)


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SEMESTER IV

Programme: B.Sc.	Subject : Physics
Course Code: 19UPHAL41	Course Title : Allied Physics Practical – II (For Chemistry)
Category: Allied Practical - 2	Credits : 1 Hours: 2 hrs

Objectives:

- 1. Students can easily understand how to calibrate voltmeter and ammeter.
- 2. To understand the concept of comparison between basic logic gates – AND, OR, NOT.
- 3. Students can know about the characteristics of Zener diode and Transistor

S.No	Experiments	Outcomes
1	Potentiometer-calibration of voltmeter (low range)	Students use standard methods to calibrate the given low range voltmeter and to measure resistance of the given coil and various physical quantities
2	Potentiometer - calibration of ammeter	Students can use standard methods to calibrate the given ammeter and to measure resistance of the given coil and various physical quantities
3	Series resonance circuit	Students study the frequency response of series and hence determine the resonant frequency, band width and quality Factor
4	Parallel resonance circuit	Students study the frequency response of parallel and hence determine the resonant frequency, band width and quality Factor
5	Basic logic gates using discrete components–AND,OR,NOT	Students find easy to understand the concept of comparison between basic logic gates – AND, OR, NOT
6	Zener diode characteristics	Students learn Zener diode characteristic is easy to analyse the break down voltage
7	Transistor characteristics (CE mode)	Students acquire the knowledge about the characteristic of Transistor
8	Absolute determination of mutual Inductance	Students can determine the mutual inductance of two coils
9	Owen’s bridge- Absolute determination of self inductance	Students know the bridge is used to measure the inductance in terms of capacitance
10	Tangent galvanometer-Horizontal earth’s magnetic induction	Students are able to connect the tangent galvanometer to calculate magnetic field

Reference Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Allied Physics – Paper I	Dr.T.Balu, Dr. P.Selvarajan, Dr.R.Sreedevi, Mrs. G. Vasuki	Nov2019 (Revised)	


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SEMESTER V

Programme	:B.Sc.	Subject	: Physics
Course Code	:19UPHC51	Course Title:	:Analog Electronics
Category	:Core-7	Credits	: 4
		Hours:	4 hrs

Objectives:

- 1. To know about theorem used in Electronics
- 2. To understand about diode and transistor circuits and the basics of operational amplifier.
- 3. To gain knowledge about rectifier circuits and its applications

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Principles of Electronics	- V.K.Mehta& Rohit Mehta-	2008 (11)	S.Chand&Co.

Unit	Detailed syllabus	Outcomes	Hours
1	Linear circuit analysis Constant voltage source, constant current source, conversion of voltage source into current source - Maximum power transfer theorem - Thevenin's theorem - Norton's theorem - hybrid parameters - determination of h parameter - equivalent circuit	The students can 1. get the knowledge about current and voltage sources 2. know about the theorem used in electronics 3. get familiar with basic electronic components and use them to design simple electronic circuits	12
2	Semiconductors diodes and devices PN Junction - V – I characteristics of PN Junction - Crystal diode as a rectifier - Zener diode - V – I characteristics of Zener diode. Half wave rectifier, centre tap full wave rectifier - Full wave bridge rectifier - Comparison of Rectifiers - Filter Circuits-Types (capacitor filter, choke input filter, Π filter) - Zener diode as voltage stabilizer	The students can 1. Study basics of semiconductor & devices and their applications in different areas 2. gain the knowledge about rectifier circuits and its applications 3. know about the filter circuits and zener diode	12
3	Transistor amplifiers Transistor action - Transistor connections - common emitter - common base - common collector - RC coupled amplifier - transformer coupled amplifier - power amplifier - classification of power amplifiers (Class A, Class B and Class C) - Push pull amplifier - FET parameters - JFET characteristics	The students can 1. Know about transistors 2. Study different biasing techniques to operate transistor, FET and JFET 3. Study about the different types of amplifiers and its working	12
4	Oscillators and wave shaping circuits Feedback principle and Barkhaus on criterion - Hartley, Colpitt's, and Phase shift oscillators using transistors – Astable - Monostable and Bistable multi vibrators using transistors - Schmitt trigger - clipping and clamping circuits - Differentiating circuit - Integrating circuit	The students can 1. Study about the feedback circuits and condition for feedback 2. study about different types of oscillators using transistors 3. get the knowledge about the clipper and clamper circuits and its applications	12
5	Operational amplifier Op-Amp - pin diagram- characteristics of ideal Op - Amp - DC and A.C analysis of Op- Amp - Bandwidth of an Op-Amp - Slew rate - Frequency response - Op- Amp with negative feedback - applications - Inverting amplifier - Input and output impedance of Inverting amplifier - Non inverting amplifier - Voltage follower- Summing amplifier -Adder - Subtractor - Integrator – Differentiator- low pass, high pass and band pass filters	The students can 1. Know about the op-amp IC and its pin diagram and working 2. study about the op-amp characteristics and properties 3. gain the knowledge about applications such as adder, subtractor, voltage follower, Integrator and band pass filters	12

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Electronic fundamentals and Applications	Chttopadhyay P.C.Rahshit	2000 (12)	New age International Publishing
2	Electronic principles	Albert Malvino, David J Bates	2006 (7)	MC Grawhill education
3	Electronic devices and Circuits	David Bell	1980 (2)	Prentice Hall
4	Physics of semiconductor Devices	Dilip K. Roy	2004 (2)	Universities press

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SEMESTER V

Programme: B.Sc.	Subject: Physics
Course code: 19UPHC52	Course Title: Programming in C++
Category: Core-8	Credits: 4 Hours: 4 hrs

Objectives:

1. To provide knowledge about the basics of Computer programming in C++
2. To solve the problems using C++ programme
- 3. To carry out many mathematical computations using the functions of C++

Unit	Detailed Syllabus	Outcomes	Hours
1	What is C++? Introduction - keywords - identifiers and constants - declaration of variables - basic data types - user defined data types-derived data types - symbolic constants - operators in C++ - scope resolution operator - expressions and their type - special assignment operators – all control structures.	The students can 1. develop modules that are tolerant to any changes in future 2. provide knowledge about the basics of Computer programming in C++ 3. Solve problems by writing programs	12
2	Arrays & functions in C++ Introduction - one dimensional and two dimensional arrays-initialization of arrays- array of strings Functions-introduction-function with different types-call by reference-return by reference- function prototyping - inline functions	The students can 1. divide a program into functions to make easy 2. reduce the size of a program in terms of calling functions and arrays 3. To carry out many mathematical computations using functions	12
3	Classes and objects Introduction - specifying a class - defining member functions- Outside the class definition- Inside the class definition- nesting of member functions - private member functions- arrays within a class- array of objects-static class members-friend functions- constructors – parameterized constructors-multiple constructors – constructors with default arguments - copy constructor.	The students can 1. create a new way to implement the user-defined data type 2. access the public member of a class 3. learn the memory space allocation of objects	12
4	Operator overloading, inheritance Introduction-defining operator overloading-overloading unary operators-binary operators. Inheritance-single inheritance-multiple inheritance-multi level inheritance- hybrid inheritance - hierarchical inheritance-virtual base class-abstract Class	The students can 1. know about the operators with a special meaning for a data type 2. know about the flexible option for the creation of new definitions for operators 3. gain knowledge about the concept of reusability by inheritance	12
5	Managing console i/o operations Introduction - C ++ stream - C ++ stream classes - unformatted I/O Operations - formatted console I/O operations - working with files - classes for file stream operations - opening and closing a file - file pointers and their manipulations.	The students can 1. learn how to control the way the output is printed 2. design the I/O system to work with different I/O devices 3. design our own manipulators for certain special purposes	12

Text Book:

S. No	Title of the book	Author/s	Year (Edn)	Publisher/s
1	Object oriented Programming with C++	E.Balagurusamy	2011 (3)	Tata Mc Graw-Hill publishing Company Ltd. New Delhi

Reference Books:

S. No	Title of the book	Author/s	Year (Edn)	Publisher/s
1	Programming with C++	D.Ravichandran	2012 (5)	Tata Mc Graw-Hill publishing Company Ltd. New Delhi
2	Object oriented Programming in C++	Robert Lafore	2008 (4)	Macmilan publishing company Ltd.
3	Fundamentals of Programming with C++	Richard L. Halterman	2019	Macmilan publishing company Ltd.

   
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S. MAGARA JOTHI LAKSHMI **Dr. V. SANGEETHA** **Dr. N. LAVANYA** **Dr. N. KAMALA**

UPH-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVELI-627011
SEMESTER V

Programme: B.Sc.	Subject: Physics
Course code: 19UPHC53	Course Title : Atomic Physics
Category: Core-9	Credits:4 Hours: 3 hrs

Objectives:

1. To provide an introductory account about the atomic structure and the impact of X-rays.
2. To give a broad knowledge about important characteristics of atoms, molecules and their interaction with electromagnetic fields
3. To gain knowledge about band theory of solids

Unit	Detailed Syllabus	Outcomes	Hours
1	Band theory of solids The free electron theory of metals – expressions for electrical conductivity – thermal conductivity – Wiedman-Franz's law-Hall effect-magneto resistance- determination of electronic charge – Millikan's oil drop method – electron microscope – Band theory of solids – classification of solids on the basis of band theory.	The students can 1. Obtain knowledge from the classification of solids on the basis of the band theory of solids 2. learn the working principle of Millikan's oil drop method 3. know the electrical conductivity is useful to improve their skill	12
2	Positive rays Discovery-properties- analysis – Thomson's parabola method – Aston's mass spectrograph – Bainbridge's mass spectrograph – Dempster's mass spectrograph – Dunnington's method of determining	The students can 1. Determine the e/m by using Dunnington's method 2. get more idea of Aston spectroscopy and Bainbridge spectroscopy	12
3	Atomic structure-I Early atomic spectra-Thomson model-Alpha particle scattering-Rutherford's nuclear model-drawbacks- Bohr atom model - correspondence principle- Sommer field's relativistic atom model-drawbacks- the vector atom model – Quantum numbers associated with the vector atom model - the Pauli's exclusion principle – periodic classification of Elements	The students can 1. Obtain knowledge from the basic concept of the atomic structure 2. Obtain knowledge about Pauli's exclusion principle 3. Study various atomic models and gather knowledge about scattering	12
4	Atomic structure-II Coupling schemes-L-S Coupling-j-j Coupling-Hund rules- magnetic dipole moment due to orbital motion of the electron-due to spin of the electron -Stern and Gerlach experiment-spin-orbit coupling- Normal Zeeman effect-theory and experiment- quantum mechanical explanation -Larmor's theorem- Anomalous Zeeman effect-Paschen –Bach effect-	The students can 1. Learn the basic principle of Hund's rule, magnetic dipole moment etc 2. Derive equation of normal Zeeman effect, theory and experimental ideas about normal Zeeman effect 3. Get clear ideas about Stark effect	12
5	X-Rays Production of X-rays – properties-absorption of X-rays – X-ray absorption edges- Bragg's law – Bragg's X-ray spectrometer – the powder crystal method – Laue's method – Rotating crystal method – X-ray spectra- continuous spectra- characteristic spectra-Moseley's law -importance-width of spectral lines-Doppler broadening-collision broadening.	The students can 1. learn the crystal structure is analyzed by using the powdered crystal method 2. know the powder crystal method and explain the crystal structure 3. obtain knowledge about Bragg's x-ray spectrometer and rotating crystal method	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Modern physics	R.Murugesan	2014 (17)	S.Chand & Co

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Modern Physics	R.Murugesan and Kiruthiga Sivaprasath	2016 (18)	S.Chand & Co Ltd, New Delhi
2	Modern Physics	Kenneth S. Krane	2012 (3)	John Wiley & Sons
3	Atomic and Nuclear Physics	N.Subramanyan Brijal	2007 (2)	S.Chand & Co Ltd, New Delhi
4	Modern Physics	Arthur Beiser, Shobhit Mahajan, S.Rai Choudhury	2017 (7)	MC Graw Hill Education
5	Modern Physics	Kenneth S. Krane	1995 (2)	John Wiley & Sons


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Programme: B.Sc.	Subject: Physics
Course code: 19UPHE51	Course Title: Numerical Methods
Category: Core Elective	Credits: 4 Hours: 3 hrs

Objectives:

1. To analyze the error and accuracy of common numerical methods and to rectify it.
2. To know how to use approximation methods to find solution to problems which do not have exact solution
3. To derive differential equations using different methods

Unit	Detailed Syllabus	Outcomes	Hours
1	Errors and Root of equations What is numerical analysis-Numbers and their accuracy-errors-measurement of errors-round off error-truncation error- absolute error-relative error-percentage error-inherent error-accumulated error- general error formula-convergence Root of equations- Iteration method-Newton-Raphson method-Bisection method	The students can 1. demonstrate the understanding of common numerical methods 2. obtain approximate solutions to mathematical problems 3. analyze and evaluate the accuracy of common numerical methods	12
2	Matrix and linear equations Introduction- solution of Algebraic and Transcendental equation-system of linear equations- Gauss Elimination method- Gauss Seidal Iteration Method-Gauss Jordan elimination method- Matrix Inversion method	The students can 1. study the systems of linear equations, matrix algebra, vector spaces 2. use appropriate numerical methods to determine different types of methods 3. use some solution methods for solving the nonlinear optimization problems	12
3	Interpolation and approximation Linear Interpolation- Inverse Interpolation - Lagrange's interpolation - Richardson's Extrapolation - Aitken's iterated Interpolation	The students can 1. derive numerical methods for interpolation 2. derive the solution Lagrange's interpolation 3. solve Aitken's iterated interpolation	12
4	Numerical Differentiation and Integration Numerical Differentiation- Approximation of derivatives using interpolation polynomials- Taylor series method Numerical Integration- trapezoidal rule- Simpson's 1/3 and 3/8 rules	The students can 1. solve first order differential equations utilizing the standard techniques 2. use the derivative or integral of the polynomial as an approximation to the function 3. sensitive to round-off errors by numerical differentiation	12
5	Differential Equations Introduction-Euler's method- Improved Euler's method-Backward Euler method- Taylor's series method- Runge-kutta method - Milne's Predictor corrector Methods	The students can Know about Euler's method Solve differential equations using different methods Study how to solve differential equations	12

Text Books:

S.No	Title of the book	Author/s	Year (Edn)	Publisher/s
1	Introductory methods of numerical analysis	S.S. Sastry	2000 (2)	Prentice Hall of India, New Delhi
2	Numerical methods	A. Singaravelu	2001 (3)	Meenakshi Agency, Chennai

Reference Books:

S. No	Title of the book	Author/s	Year (Edn)	Publisher/s
1	Numerical method in Science and Engineering	K. Venkataraman	1997	M, PHI - New Delhi
2	Mechanics and Mathematical Methods	R. Murugesan	1999	S. Chand & Co, New Delhi






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Programme: B.Sc.	Subject: Physics
Course code: 19UPHE52	CourseTitle: Fundamentals of Spectroscopy
Category: Core Elective	Credits: 4 Hours: 3 hrs

Objectives:

1. To impact the knowledge of atomic spectra, molecular spectra and their instrumentations.
2. To gain knowledge to identify materials with the help of various spectra
3. To know about polyatomic molecules

Unit	Detailed Syllabus	Outcomes	Hours
1	Microwave spectroscopy The relation of molecules, its spectra, Diatomic molecules- rigid diatomic molecule-intensities of spectral lines, effect of isotopic substitute, Non rigid rotator- spectrum of non rigid rotator- polyatomic molecules- linear, symmetric top, asymmetric top molecules. Techniques and instrumentation, chemical analysis by microwave spectroscopy.	The students can 1. understand the basic of spectroscopy concepts 2. know the rigid rotator and non rigid rotator 3. enable students to learn microwavespectroscopy	12
2	Infrared spectroscopy Vibrating diatomic molecule-energy of diatomic molecule, harmonic and anharmonic oscillator, vibrating rotator- Co-vibrating rotator spectrum, interaction of rotations and vibrations of polyatomic molecules- fundamental vibrations and their symmetry-overtones and combination frequencies. Analysis by IR techniques.	The students can 1. familiarize the basic concepts of IR spectroscopy 2. learn about atomic and molecular spectra and instrumentations 3. know the vibrations of polyatomicmolecules	12
3	Raman spectroscopy Theory of Raman effect- quantum theory of Raman effect- classical theory of Raman effect- Pure rotational Raman spectra - linear symmetric top, spherical top, asymmetric top molecules. Pure vibrational Raman spectra-Raman activity of vibration rule of mutual exclusion, Overtones and combination vibrational spectra, nature of light polarized, vibration of spherical top molecules and other type of molecules. Structural determinations from Raman and IR spectroscopy.	The students can 1. Acquire the knowledge of Ramanspectroscopy 2. Understand the symmetric and asymmetric top molecules. 3. Know the structure of the molecules	12
4	Electronic spectroscopy Born - Oppenheimer approximation vibrational coarse structure (progression), intensity of vibrational electronic spectra, (Franck Condon principle), dissociation energy and dissociation products. Vibrational spectra Vibrational fine structure (Rotation), Fortart diagram, pre dissociation, diatomicmolecular electronic spectra.	The students can 1. Learn the vibrational ofcoarse structure of themolecules 2. establish the structure of the vibrationalmolecules 3. Understand the electronic spectra of diatomicmolecules	12
5	NMR and ESR Spectroscopy Introduction – Nuclear spin and magnetic moment – Nuclear Magnetic resonance – Theory of NMR spectroscopy - The origin of signal – Instrumentation – Technique and principle – Experimental methods of NMR spectroscopy – Some important aspects of NMR spectrum – Interpretation of spectra ESR spectroscopy – Introduction – Limitation of ESR – Difference between ESR and NMR – Instrumentation to study ESR	The students can 1. Learn basic design principles of Medical instruments and their components 2. Know about Electroencephalography – Brain waves, placement of Electrodes and Analysis 3. Get in-depth study of Bio-Medical Instrumentationlike Lasers	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Spectroscopy	Brijal Subramanian	2000 (New)	S Chand

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Molecular structure and Spectroscopy	G.Aruldas	2007 (2)	PHILearningPvt.Ltd,India
2	Handbook of Analytical Instruments	R.S.Khandpur	2006 (2)	TataMCGrowHillLtd
3	Spectroscopy	G.R.ChatwalandS.K.A Nand	2002 (5)	Himalaya publishing House, NewDelhi
4	Fundamentals of molecular spectroscopy	C.N.Banwel	2016 (4)	Tata McGraw Hill PublishingCo.Ltd


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Programme : B.Sc.	Subject :Physics
Course code: 19UPHCL51	Course Title :Non electronics Practical – V
Category: Core Practical -5	Credits: 2 Hours: 4 hrs

Objectives:

1. To get well developed knowledge about Spectrometer experiments
2. To analyze the effects of refractive index of a medium using optical instruments
3. To calibrate a High range voltmeter

Any 8 experiments only

S. No	Experiments	Outcomes
1	Young’s modulus of glass-Elliptic fringes	The students can obtain the knowledge by forming Elliptical Fringes
2	Spectrometer-Cauchy’s constants	The Students can analyze the effects of refractive index of a medium using optical instruments
3	Spectrometer-Hartman’s formula	The students can learn and apply the Harman’s formula in optical instruments
4	Spectrometer- i_1 - i_2 curve	The students can verify the angle of incidence and refractive index
5	Spectrometer-Bi prism	The Students to learn the Use of basic laws to study the spectral properties and optical properties of the given Prism
6	Newton’s Rings – determination of R_1, R_2 and f of the lens	The Students can determine the wavelength of sodium light by forming Newton’s rings
7	Absolute determination of capacitance-BG	The students to study the absolute determination of Capacitance
8	Absolute determination of mutual inductance & comparison of mutual inductance-BG	The students can learn the current to be measured is passed through a multi-turn, low resistance coil suspended in a uniform magnetic field
9	High resistance by leakage-BG	The students can learn the leakage of the high resistance
10	Potentiometer-calibration of volt meter(high range)	The students to be familiar with calibration
11	Potentiometer-temperature coefficient of Resistance	The students can learn the calibrate a thermocouple to measure temperature in a specified Range
12	Network theorems (Thevenins & Norton’s)- Verification	The students can verification of circuit laws and theorems
13	Thermo emf-Mirror Galvanometer	The student’s to study the variation of Thermo-emf of a Thermocouple with Difference of Temperature of its Two Junctions

Reference Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Practical Physics and Electronics	C.C.Ouseph, U.J. Rao, V.Vijayendran	2007	S.Viswanathan Pvt. Ltd


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SEMESTER V

Programme: B.Sc.	Subject: Physics
Course code: 19UPHCL52	Course Title: Electronics Practical
Category: Core Practical - 6	Credits: 2 Hours: 4 hrs

Objectives:

- 1. To learn physical concepts through experiments
- 2. The students can acquire the knowledge about the characteristics of Transistor
- 3. The students can analysis the single-phase AC Circuits, the representation of alternating quantities and determining the power in these circuits

S. No	Experiments	Outcomes
1	Dual power supply using IC	The students can learn the experimentation skills on dual power supply
2	Diode characteristics (P-N junction diode & Zener diode)	The students can acquire the knowledge about the characteristics and working principles of semiconductor Diodes
3	Transistor characteristics	The students can acquire the knowledge about the characteristics of Transistor
4	FET characteristics	The students can study drain characteristics and transfer characteristics of a Field Effect Transistor
5	NAND & NOR as universal building Block	The students can get an insight about the basic introduction of logic gates
6	Half Adder & Full Adder	The students can get an insight about the combination of logic circuits
7	Colpitt's Oscillator and Hartley Oscillator	The students can analysis the single-phase AC Circuits, the representation of alternating quantities and determining the power in these circuits
8	Single stage amplifier-with and without Feedback	The students can determine the bandwidth of amplifier in single stage
9	OPAMP-Adder & Subtractor	The students can design a circuit whose <i>output</i> is the sum of several input signals
10	OPAMP-Differentiator & Integrator	The students can understanding mathematical model (ideal & practical) of Integrator as well as Differentiator
11	OPAMP-Low pass and high pass filter	The students can theoretical principles of modern physics to analysis and measurements performed in the Laboratory
12	Astable multivibrator using IC555	The students can learn the important of IC 555 in Application
13	Monostable multivibrator using IC555	The students can get knowledge about the delay and timing circuits in temporary memories
14	Wien bridge oscillator	The students can learn the measurement of the audio Frequency
15	Full wave rectifier without and with Filters	The students can detect the amplitude of the modulating radio signal

Reference Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Practical Physics and Electronics	C.C.Ouseph, U.J. Rao, V.Vijayendran	2007	S.Viswanathan Pvt. Ltd


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SEMESTER V

Programme: B.Sc.	Subject: Physics
Course code: 19UPHCEP51	Course Title: Physics for Competitive Examination and Project
Category: Core -10	Credits: 6 Hours: 6 hrs

Objectives:

- 1. To crack various examinations – TNPSC, NET, SET, NEET examinations for students’s higher studies
- 2. To learn various areas of Physics namely Mechanics, Properties of Matter, thermo dynamics, Optics, Sound, Electricity, Magnetism, Electronics and Modern Physics.
- 3. Enhance the basic principles and ideas of physical concepts with applied knowledge

General outcomes:

The students can

- 1. Enable to get through in various competitive examinations like governments service, entrance examinations for higherstudies.
- 2. Learn various areas of physics like Mechanics, Properties of Matter, and thermo dynamics, Optics, Sound, Electricity, Magnetism, Electronics and ModernPhysics.
- 3. Enhance the basic principles and ideas of physical concepts, reasoning can beimproved.

Unit	Detailed Syllabus	Hours
1	Units of physical quantities and their dimensions – Particle dynamics, projectiles, conservation laws and collision two bodies – Circular motion, Rotating frame of reference, Conical and Foucault’s pendulum – Rotational motion, centre of mass, moment of inertia – Simple Harmonic motion and Harmonic oscillator – Gravitation, Escape velocity & Artificial satellites – Mechanics of fluids: Surface tension & Viscosity – Elasticity.	12
2	Inter molecular forces, Kinetic theory of gases and behaviour of real gases – Laws of thermodynamics – Conduction & Radiation – Nature of light – Interference – Diffraction, Resolving power & Polarization – Geometrical optics and Aids to vision –Superposition of waves – Doppler’s effect.	12
3	Magnetic properties of matter – Electrostatics – Electric potential – Capacity and Capacitors – Kirchhoff’s Laws and steady current – Magnetic effect of current – Potentiometer & Thermoelectricity – Electromagnetic induction – Heating & Chemicaleffects of current – Alternation current.	12
4	Atomic structure and positive rays – X rays and photoelectric effect – Matter waves,uncertainty principle, wave mechanics and special theory of relativity.	12
5	Radioactivity and Atomic Nucleus – Electronics and semiconductors – Solids – Universe – Digital Integrated Circuits.	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Objective Physics	Dr. S. L. Kakani.	1995 (6)	Sultan Chand & Sons, New Delhi


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SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVELI 627011

Affiliated to Manonmaniam Sundaranar University, Tirunelveli
Institution recognised u/s 2(f) and 12(B) of UGC & Reaccredited with “A” grade by NAAC

Project Guidelines

(For Certificate, Diploma, Advanced Diploma, UG, PG, and MPhil., programmes)

- Duration of the project work shall be for a period of one semester
- Project work shall be carried out under the supervision of a faculty member of the department concerned or from allied department, if the work is of interdisciplinary in nature or with internal or external expert beyond the department as co-supervisor.
- The supervisor allocation shall be made by lot by the end of 4 semester in UG, by the end of 2nd semester in PG (April 1st week) and for MPhil., 15 days after joining the programme. The allocation details may be sent to Autonomous cell by 10th April for UG & PG and for MPhil., 30 days after joining the programme.
 - After allocation, the respective supervisors have to conduct orientation/counsel meeting with the assigned candidates about the project with P3 agenda (Participation, Presentation, and Publication) towards career prosperity. Subject Knowledge towards Pure and Applied part may be highlighted for doing the project.
 - The HoD shall review the coverage of different fields of the subject amongst the candidates and to see that the students should not focus on particular fields alone.
- The candidates have to study/refer journals/previous works/focus on the proposed topic in the summer vacation and 5-10 titles of proposed project on respective subject (discipline) or on allied subject (interdisciplinary) with economic/scientific/social/local/state/national/global issues may be submitted to the guide by May end.
- The supervisor shall guide the candidates on their choice after having reviewed proposed topics, the mindset and work culture, provided the work is of innovative in nature, affordable and with future prospective. If not satisfied with the proposed topic/due to lack of infrastructure/beyond scope and practicality, supervisor herself shall suggest the field/topic for work. Hard copy of proposed title with objectives in the prescribed format to be submitted to CoE’s Office through Dean, Autonomous in the last week of June
- Parent’s undertaking/willingness may be obtained in writing by inviting the parents for department level meeting after explaining its importance, guidelines, safety precautions related to outdoor project commitments etc.
- Project period – June to September. Last date for the submission of dissertation is 15th October
- Project Progress Review has to be conducted in 5th July, 5th August and 5th September. Report Card for individual candidates shall be maintained at the department for audit at any time. (Proforma)
- If a candidate fails to submit the dissertation on or before the specified date, she may submit the same on or before 15th November by paying prescribed late fee.
- The evaluation of dissertation will be as per the University/Autonomous norms
The assessment of Project component during the Course and in the End-semester Examinations shall be carried out as follows:

CIA (Max: 25 Marks)				End – Semester Examination (Max.: 75 marks)				
Marks for Reviews (Average of the best two of the three compulsory Reviews) (Max.: 25 marks)				Marks for Thesis Evaluation (Max.: 25 marks)	Marks for Viva-Voce Exam. (wit the Deptl. Faculty Member / Course students) (Max.: 50 marks)		Total (Max.)	
Review I (Max)	Review II (Max)	Review III (Max)	Average of the best two (Max)	Project Supervisor (Max)	External (from outside the Institution) (Max)	Project Supervisor (Max)	External (from outside the Institution) (Max)	
25	25	25	25*	12.5	12.5	25	25	75*

* The marks secured may be rounded off to its nearest integer.


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11. PG and M.Phil., students should carry out the project individually. UG students may undertake group projects with a maximum of three students in a group. The group may be of interdisciplinary nature combining students from two to three departments with the concern of the respective guides. An undertaking, in this regard, has to be submitted by the group of students with the endorsement by the guides.
12. LATEX procedure shall be followed for Mathematics projects.
13. **GUIDELINES ON THESIS (WITH STATIONERY ECONOMY MEASURES):**

a. Number of Pages (inclusive of prefix and suffix):

i) V semester Project Maximum 40 pages;

ii) VI semester Project Maximum 60 pages,

iii) PG Projects Maximum 80 pages;

iv) MPhil., maximum 100 pages.

b. Size of the paper A4; Font Times New Roman; Title 14 Capitals/Bold; Subtitle 12 Capitals/Bold; Running matter 11.

c. Left and Right margin 1 and half inch; Top and bottom margin 1 inch

d. Line space 1.5

e. Table and Figures shall be in separate sheets (without page number). More than 1 table or figure or plate is permitted in a page. Table number followed by the title should be on the top of the respective table. Similarly Figure Number followed by title be at the bottom of the respective figures. Regarding Plates ie photographs only original photographs (printed in photo sheet) of the work carried out and scientifically relevant to be included. The size the photographs should be reduced and neatly arranged in a page with appropriate title or sub title. Plate Number followed by the title be at the bottom of the photographs concerned.

f. Number of copies:

i. Copy 1 – Student copy – Neatly typed on one side with good binding to be submitted (to be returned immediately after examination)

ii. Copy 2 – Department copy - Neatly typed on both sides of the paper with stapler pin binding – Copies of all students have to be bound in volumes of 1 or 2 and kept in the department for reference.

iii. Copy 3 - Autonomous Office copy – Projects of all students as one CD/DVD & Hard copy of the abstract/extended abstract as OHP bound booklet.

iv. For PG & MPhil., (Candidate copy - Hard bound (one side print), Autonomy (CD), Guide copy (CD), Department (CD containing all projects of the class), Central library (CD containing all projects of the class) & Hard copy of the abstract/extended abstract as OHP bound booklet.

g. Uniform structure/composition of the thesis:

Uniformity in Prefix contents for all disciplines			
1	Wrapper page		
2	Wrapper page copy		
3	Contents		
4	Acknowledgement by the candidate		
5	Declaration by the Candidate with candidate's Photo attested by HoD		
6	Certificate by the supervisor, countersigned by HoD		
7	Evaluation Examiners Page		
Running matter structure Arts, Languages, Humanities		Running matter structure Science	
1	Abstract/Extended Abstract	1	Abstract/Extended Abstract
2	Introduction	2	Introduction
3	Review of Literature	3	Review of Literature
4	Profile of The Study	4	Materials
5	Methodology & Data collection	5	Methodology
6	Analysis and Interpretation	6	Results
7	Findings, Suggestions and Conclusion	7	Discussion
8	Bibliography(Uniform format)	8	Bibliography (Uniform format)
Uniformity in Suffix – contents			
Publications – Xerox of Abstracts/extended abstracts/Full papers			


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h. Bibliography: Arts & Science.

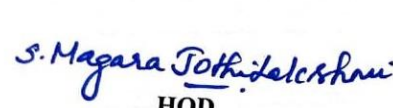
i. Research article:
Latha, P., Dhanabackialakshmi, R., Kumar, P.S. and Karuthapandian, S. 2016. Synergistic effects of trouble free and 100% recoverable CeO₂/Nylon nanocomposite thin film for the photocatalytic degradation of organic contaminants. Separation and Purification Technology, 168(2): 124–133

ii. Conference / Seminar / Symposium papers
Peng, J., Zhang, X., Lei, Z., Zhang, B., Zhang, W. and Li,Q. 2009. Comparison of several cloud computing platforms. In: Proceedings of Second International Symposium on Information Science and Engineering, 23 – 27

iii. Books
Versteeg, H.K. and Malalasekera, W. 2007.An Introduction to Computational Fluid Dynamics. II Edn. Pearson Education Ltd., New York, pp. 517

iv. Book Chapters
Wade, S.E. 1981. Statistical designs for survey research. In: Stempel, G.H. and Westley, B.H. (Eds.). Research methods in mass communication.Printice Hall India Learning India Ltd., New Delhi, pp. 167

v. Web reference
National Institute of Mental Health.2018, July.Anxiety disorders. U.S. Department of Health and Human Services, National Institutes of Health. <https://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>
(Author to be included first, date to be included before month, if available)

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Programme: B.Sc.	Subject: Physics
Course code: 19UPHC61	Course Title: Digital Electronics
Category: Core -11	Credits: 4 Hours: 5 hrs

Objectives:

1. To know about decimal, binary, octal, and hexadecimal number systems and their conversions.
2. To provide knowledge about Boolean algebra and logic gates.
3. To gain knowledge about registers and counters used in electronic devices.

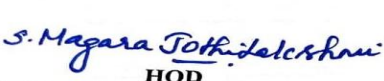
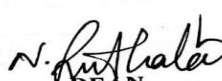
Unit	Detailed Syllabus	Outcomes	Hours
1	Number systems, binary arithmetic and codes Decimal, binary, Octal, decimal and hexadecimal number systems and their inter conversions Binary arithmetic- Binary addition-binary subtraction-1's and 2's complements-- BCD codes, ASCII code, Excess-3 code, Gray code.	The students can Gain knowledge about various numbersystem Solve Binary arithmetic problems Get ideas about 1's and 2's complement	12
2	Boolean algebra and logic gates Boolean algebra-De Morgan's theorem –Positive logic and negative logic systems- Basic logic gates, OR, AND, NOT (symbol, Boolean equation, truth table, circuit diagram and working)-NAND, NOR, EX-OR (symbol, Boolean equation, truth table only)-NAND and NOR as universal building blocks.	The students can Gain ideas about basic logic gates Know to verify De Morgans theorem Obtain knowledge about Positive and negative logicssystem	12
3	Arithmetic circuits, flip-flops and multivibrators Half and full adders- Half and full subtractors-RS Flip-flop-clocked RS Flip-flop, JK Flip-flop, JK master slave Flip-flop, D Flip-flop, T Flip-flop-555 timer- Astable multivibrator, monostable multivibrator- Frequency divider	The students can Know about hall adder and fulladders andsubtract Gain knowledge about differenttypes of flipflops Get basic ideas about different types of multivibrators	12
4	Karnaugh map and combinational circuit applications Karnaugh map - 2,3and 4 variables –simplification- SOP and POS form of Boolean functions - Don't care conditions-Multiplexer, Demultiplexer, Encoder, Decoder, parity generator andchecker.	The students can Get ideas about Karnaugh map of 2, 3 and 4variable Acquire ideas about Multiplexer and demultiplexer Know about parity generator and Checker	12
5	Shift registers and counters Types of registers- Serial in –Serial out-Serial in- Parallel out- Parallel in- Serial out- Parallel in- Parallel out- Asynchronous counters and Synchronous counters- Ring counter- Binary counter- Up- Down counter- Mod-5 counter- Mod-10 counter (decade counter)-A/D and D/A converters.	The students can Gain ideas about types of register Obtain knowledge about counters Know conversion of analog to digital converter	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Digital principles and Applications	Albert Paul Malvino & Donald P. Leach	2009 (6)	TATA MC Graw Hill Education PVT, LTD. New Delhi

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Digital logic and computer Design	Morris Mano	1995 (12)	Prentice Hall of India, Pvt. Ltd
2	Digital Electronics	Gothmann W.H	1996 (3)	Prentice Hall of India, Pvt. Ltd
3	Principles of electronics	Metha V.K. Mehtha.R	2000 (5)	S.Chand&Co

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UPH-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVELI-627011
SEMESTER VI

Programme: B.Sc.	Subject: Physics
Course code: 19UPHC62	Course Title :Quantum Mechanics
Category: Core -12	Credits: 4 Hours: 5 hrs

Objectives:

- 1. To know about duality nature of matter (wave- particle) and the formation of Quantum mechanics.
- 2. To know about the evolution of quantum theory from classical theory.
- 3. To get idea about Heisenberg uncertainty principle

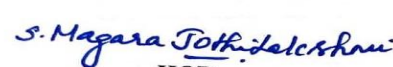
Unit	Detailed Syllabus	Outcomes	Hours
1	Origin of Quantum Theory Black body radiation – Theoretical laws of Black Body radiation – Planck’s Quantum hypothesis – Photoelectric effect - Einstein’s theory of Photo electric effect – Compton effect–The Ritz Combination Principle in spectra–Einstein’s quantum theory of specific heat – Quantum states of energy.	The students can 1. learn the Failure of classical physics 2. understand the distribution of energy in the spectrum of blackbody 3. know the planck’s quantum theory	15
2	Wave Properties of Matter Wave particle duality–Phase and Group Velocity– Analytical expression for a Group of waves – De Broglie Hypothesis for matter waves– Derivation of De Broglie relation – Phase velocity of De Broglie Waves – Relation between De Broglie wave and Phase velocity – Davisson and Germer’s experiment on electron diffraction – Diffraction of Atoms and Molecules.	The students can 1. establish the fundamental postulates and merits of quantum mechanics 2. Acquire knowledge and apply it to various physical problems 3. apply the develop problem solving ability	15
3	Heisenberg Uncertainty Principle Uncertainty Principle – Elementary Proof of Heisenberg’s Uncertainty Relation - Elementary Proof of Heisenberg’s Uncertainty Relation between Energy and Time – Illustration of Heisenberg’s Uncertainty Principle by Thought Experiments – Consequences of the Uncertainty Relation.	The students can 1. learn the basic concepts of Heisenberg’s Uncertainty principle 2. Study the Thought experiment 3. understand the elementary concepts in statistics, such as expectation value and variance	15
4	Schrodinger’s Wave Equation Basic postulates of Quantum mechanics – Schrodinger’s one and Three Dimensional Time- dependent and Time independent wave equation – Physical interpretation of the Wave function ψ – Operators in Quantum mechanics, Eigen Function, Eigen value and Eigen value Equation – Expectation Values – Ehrenfest’s Theorem – Transition Probability.	The students can 1. motivate the students to apply schrodinger’s equation or solving problems in wave mechanics 2. understand the wave mechanics 3. know the physical interpretation of the wavefunction	15
5	Applications of Quantum Mechanics: Square well potential – free states - Particle in a One-Dimensional Box – Particle in a Rectangular Three-Dimensional Box – Simple Harmonic Oscillator – Reflection at a Step Potential – Transmission across a Potential Barrier: the tunnel Effect – Particle in 1 D square well potential of infinite Depth.	The students can 1. estimate the Transmission across a Potential Barrier 2. learn particle in a one- dimensional and three-dimensional 3. understand the simple harmonic oscillator	15

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Element Of Quantum Mechanics	Kamal Singh & SP Singh	2012 (5)	S. Chand & Co

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Quantum Mechanics	Mathews P.M. and Venkatesh. K	2010 (2)	Tata McGraw PHill Ltd,
2	Quantum Mechanics	G. Aruldas	2009 (2)	PHI Pvt Ltd
3	Quantum Mechanics	G.S. Chaddha	2009 (6)	New Age International Publishers


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SEMESTER VI

Programme: B.Sc.	Subject: Physics
Course code: 19UPHC63	Course Title : Nuclear Physics
Category: Core -13	Credits: 4 Hours: 4 hrs

Objectives:

- 1. To provide knowledge about structure, model and characteristics of nucleus of an atom.
- 2. To know about the reactions undergone by a nucleus such as nuclear fission and fusion
- 3. To get basic idea about radioactivity, and elementary particles

Unit	Detailed Syllabus	Outcomes	Hours
1	Atomic nucleus General properties of the nucleus- binding energy – mass defect -packing fraction— BE/A curve and its significance - Nuclear forces—characteristics –Meson theory of nuclear forces –Nuclear models –Liquid drop model –Binding Energy formulae– Shell Model –magic numbers	The students can 1. know about the nucleus and its properties 2. understand the concept of nuclear forces and its theories 3. gain a clear picture of nuclear composition and various nuclear models	12
2	Radio activity Natural radio activity –alpha, beta and gamma rays- properties- radioactive series-laws of radioactive disintegration-half life period –mean life period –Radio carbon dating-law of successive disintegration– range of α particle – Geiger Nuttal law- α decay- theory- β - decay –neutrino theory of β decay-neutrino and its properties-electron capture- γ decay.	The students can 1.get a deep knowledge about Radioactivity, laws of radioactive disintegration 2.get the knowledge about α , β , γ decay and related theories 3.know about Geiger nuttall law	12
3	Nuclear reactions Kinematics of nuclear reaction-conservation of momentum - Q value of nuclear reaction-compound nucleus - nuclear energy level-Nuclear fission – energy released in fission. Nuclear reactor-uses - Nuclear fusion –Thermo nuclear reactions-controlled thermo nuclear reaction- Principle and action of atom bomb-hydrogen bomb-fusion reactor.	The students can 1.get knowledge about nuclear fission and nuclear fusion reactions 2.get the knowledge about the nuclear reactors and its uses 3.get the knowledge about the hydrogen bomb and atom bomb	12
4	Nuclear detectors and particle accelerators Detectors-G.M.Counter-scintillation counter- bubble chamber-wilson cloud chamber Accelerators-cyclotron-synchrocyclotron-betatron-Synchrotrons	The students can 1.gain the knowledge about the various nuclear detectors 2.gain knowledge about the particle accelerator	12
5	Cosmic rays and elementary particles Cosmic rays-introduction- latitude, altitude and azimuth effects-longitudinal effect-north –south effect-primary and secondary cosmic rays- nature of cosmic rays- cosmic ray showers-Van Allen belt- origin of cosmic radiation. Elementary particles- introduction-particles and antiparticles-antimatter-the fundamental interaction-elementary particle quantum numbers-conservation laws and symmetry-the quark Model	The students can 1.get the knowledge about the cosmic ray’s properties 2.know about the elementary particles, classification and properties 3.Study about the quark and its models	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Modern Physics	R.Murugesan	2014 (17)	S. Chand & Co

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Modern Physics	Seghal Chopra & Seghal	1998 (3)	Sultan chand
2	Nuclear Physics	D.C. Tayal	2018 (1)	Himalaya publishing house
3	Nuclear Physics - an Introduction	S B Patel	1992 (1)	Wiley Eastern Limited


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SEMESTER-VI

Programme: B.Sc.	Subject: Physics
Course code: 19UPHC64	Course Title: Solid State Physics
Category: Core -14	Credits: 4 Hours: 4 hrs

Objectives:

- 1. To get clear idea about crystals and nano particles
- 2. To know about super conductivity of a material
- 3. To get detail ideas about magnetic materials and solids

Unit	Detailed Syllabus	Outcomes	Hours
1	Crystal lattices Introduction-seven classes of crystals - Bravais lattice in three dimensions - crystal structure - Simple cubic, Face centered cubic, Body centered cubic and Hexagonal close packed structure - Sodium Chloride, Zinc Blende and Diamond Structures. Miller Indices and crystal planes - procedure for finding Miller Indices - Diffraction of X-Rays - Bragg’s Law	The studentscan 1. Explain crystal systems,diffraction and reciprocal space 2. Define Atomic packing,Crystal, Lattice, Unit cell and Translation vectors 3. Explain Crystal planes and directions, Miller indices,Diffraction of waves by crystals and Bragg’s law	12
2	Types of magnetic materials Introduction -classical theory of Diamagnetism - Langevin’s theory of Para magnetism - Weiss Theory of Para magnetism - Ferromagnetism - Domain theory of ferromagnetism - Anti ferromagnetism - ferrites - Fundamental Definitions of Dielectrics - Different types of Electric Polarizations- electronic, ionic, orientation and space charge Polarizations - Dielectric Loss - Internal Field- Clausius – Mosotti Relation	The students can 1. Know that how magnets can be used to separate different metals 2. Identify metals that respond to magnets 3.learnbasicconceptsrelatedtosuperconducting materials as well as their applications	12
3	Bonding in solids Types of bonds in crystals - Ionic, covalent, Metallic, Vander waal’s and Hydrogen Bonding - Bond energy of sodium chloride molecule - Comparison between ionic and covalent solids - variation of inter atomic force with inter atomic spacing -cohesive energy - cohesive energy of ionic solids- application to sodium chloride crystal-evaluation of Madelung constant for sodium chloride.	The students can 1. Define the Bonds in crystals,Inert gas crystals, Vander Waals-London interaction, repulsive interaction and Bindingenergy 2. Know ionic crystal,Madelung energy andconstant 3. Know about the Covalent,Metallic and Hydrogenbonds	12
4	Super conductivity Introduction - General Properties ofSuperconductors - effect of magnetic field -Meissner effect - effect ofcurrent - thermal properties - entropy - specific heat -energy gap - isotope effect - London equations - AC & DC Josephson effects - applications - Type–I and Type–II Superconductors - Explanation for the Occurrence of Super Conductivity - BCS theory -Application of Superconductors - High TC superconductors.	The students can 1. explain how superconductors behave in magneticfields 2. identify superconductors andtheir uses 3. discuss the need for a high-T _c superconductor	12
5	Nanotechnology Nanomaterials-synthesis and classification - techniques used in synthesis of nano materials- chemical vapour deposition- sol-gel technique-electro deposition method-ball milling method- Characterization of nanomaterials-RAMAN, SEM, DRS	The students can 1. apply engineering and physics concepts to the nano-scale andnon-continuumdomain 2. identify and comparestate-of-the-art nano fabricationmethods 3. design processing conditionsto engineer functionalnanomaterials	12

Text Book:

S. No	Title of the book	Author/s	Year (Edn)	Publisher/s
1	Solid State Physics	P.K. Palanisamy	2013 (Revised)	SCITECH Publications Pvt Ltd.Chennai
2	Modern Physics	R Murugesan	2004 (1)	S.Chand& Co
3	Elementary Solid State Physics	S. L. Gupta ,V. Kumar	2017	Pragati Prakashan

Reference Books:

S. No	Title of the book	Author/s	Year (Edn)	Publisher/s
1	Nano-essentials and understanding	Pradeep. T	2007 (1)	Mc-Graw-Hill Ltd.
2	Introduction to Solid State Physics	Charles Kittel	2004 (8)	Wiley and Sons,New Delhi
3	Material Science and Engineering	V. Raghavan	2015 (6)	PHI


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SEMESTER VI

Programme: B.Sc.	Subject: Physics
Course code: 19UPHC65	Course Title: Energy Physics
Category: Core -15	Credits: 4 Hours: 4 hrs

Objectives:

- 1. To understand about the present energy crisis and various available energy resources
- 2. To know the use of alternate energy resources
- 3. To understand about solar thermal energy

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction to energy sources World’s reserve of Commercial energy sources and their availability-India’s production and reserves- Conventional and non-conventional sources of energy, comparison – Coal- Oil and natural gas – applications - Merits and Demerits	The students can 1. Know about the concept of various forms of renewable energy and non renewable energy 2. able to perform an initial design of a renewable energysystem 3. understand the various forms of	12
2	Solar thermal energy Solar constant -Solar spectrum-Solar radiations outside earth’s atmosphere –Solar radiation at the earth surface-Solar Radiation geometry-Solar radiation on tilted surfaces-Basic Principles of Liquid flat plate collector –Materials for flat plate collector - Construction and working- Solar distillation–Solar disinfection - Solar drying-Solar cooker(boxtype)	The students can 1. Know about the positive and negative aspects of solar energy in relation to natural and human aspects of the environment 2. have profound knowledge in a special field such as solar energy, storage, smart grid 3. know about the use of solar cooker	12
3	Photovoltaic systems Introduction-Photovoltaic principle-Basic Silicon Solar cell- Power output and conversion efficiency- Limitation to photovoltaic efficiency-Basic photovoltaic system for power generation- Advantages and disadvantages-Types of solar cells- Application of solar photovoltaic systems - PV Powered fan – PV powered area lighting system – A Hybrid System.	The students can 1. obtain knowledge from the basic principle of photovoltaic system 2. know the principles that underlie the ability of various natural phenomena to deliver solar energy 3. learn application oriented of solar photovoltaic system	12
4	Biomass energy Introduction-Biomass classification- Biomass conversion technologies-Bio-gas generation-Factors affecting bio-digestion -Working of biogas plant- Advantages and disadvantage of floating and fixed dome type plant-Bio-gas from plant wastes-Methods for obtaining energy from biomass- Thermal gasification of biomass-Working of downdraft gasifier- Advantages and disadvantages of biological conversion of solar energy	The students can 1. understand the concept of Biomass energy resources and their classification, types of biogas Plants-applications 2. understand the concept by studying the bio gas obtained from the plant waste method 3. Study how the working of downdraft Gasifier	12
5	Wind energy and other energy sources Wind Energy Conversion-Classification and description of wind machines, wind energy collectors-Energy storage--Energy from Oceans and Chemical energy resources-Ocean thermal electric conversion-Basic principle tidal power, advantages and limitation of tidal power generation-Energy and power from waves- wave energy conversion devices	The students can 1. Appreciate the need of Wind Energy and the various components used in energy generation and know the classifications 2. Know about tidal power generation 3. Acquire the knowledge of fuel cells, wave power, tidal power and geothermal principles and applications	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Non conventional Energy sources	Rai G. D	2010 (4)	Khanna Publishers

Reference books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Solar Photo voltaic Fundamentals, Technologies and Applications	Chetan Singh Solanki	2015 (3)	PHI Learning private limited 2011
2	Solar Energy: The State of the Art	Jeffrey M. Gordon	2001 (1)	Earth scan, 2013
3	Solar Energy Engineering: Processes and Systems	Kalogirou S.A	2013 (2)	Academic Press
4	Renewable energy sources and emerging Technologies	Kothari D.P., K.C. Singal and Rakesh Ranjan,	2000 (2)	Prentice Hall of India,
5	Solar Energy-principles of thermal collection and storage	S.P.Sukhame	2017 (4)	Tata-McGraw-Hill publishing company ltd


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SEMESER VI

Programme: B.Sc.	Subject: Physics		
Course code: 19UPHCL61	Course Title: Non Electronics & Electronics Practical		
Category: Core Practical -7	Credits: 2	Hours: 4 hrs	

Objectives:

- 1. To find the refractive index of the material under examine.
- 2. The students can design and verify truth tables of adder, subtractor, parity generator and checker, sum-of-products and product-of-sum
- 3. The students can know about constructing flip flops on their own.

S. No	Experiments	Outcomes
1	Spectrometer-Hartmann’s interpolation Formula	The students can verify the refractive index and find the value of “n”
2	Spectrometer- i_1 - i_2 curve	The students can verify the angle of incidence and refractive index
3	Mirror Galvanometer –Thermo EMF	The students can find the slope of the tangent to calculate the thermo-electric power
4	Anderson’s bridge-self inductance	The students can know that Anderson bridge is used to measure an unknown inductance in terms of known capacitance
5	Hyperbolic fringes	The students can analysis the fringes of hyperbolic Functions
6	Arithmetic and Logic units (ALU) Half Adder, Full Adder	The students can get an insight about the combination of logic circuits
7	Astable multivibrator using 555 Timer	The students can learn the importance of IC555 in Application
8	Combinational Logic 1. To design a combinational logicsystem for a adder, subtractor, parity generator and checker, sum-of-products and product-of-sum 2. To convert a Boolean expressioninto Logic Gate Circuit and assemble it using logic gate IC’s	The students can design and verify truth tables of
9	Analog/Digital Conversion 1. To design an analog to digital converter of given specifications.	The students can 1. know analog to digital convertor converts the analog signal to digital signal
10	To build Flip-Flop Circuits using elementary gates (RS, D- type, and JK Flip-Flop)	The students can verify Flip-flop and truth table using clock and without clock
11	4-bit Binary Adder	The students can get an insight about the combination of logic circuits
12	Monostable multivibrator using 555Timer	Students can get the knowledge about the delay and timing circuits in temporary memories
13	Digital to Analog conversion: To design a digital to analog converter of given specification	Students can know digital to analog converter is in to a analog voltage. It is an opposite function of an analog to digital convertor

Reference Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Practical Physics and Electronics	C.C.Ouseph, U.J. Rao, .Vijayendran	2007	S. Viswanathan Pvt. Ltd


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UPH-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVELI-
627011SEMESTER VI

Programme: B.Sc.	Subject: Physics	
Course code: 19UPHCL62	Course Title: Computer Programming in C++ Practicals	
Category: Core Practical -8	Credits: 2	Hours: 4 hrs

Objectives:

- 1. To learn how to display the date, month, year in the display screen using C++ Programme.
- 2. Students can apply physics formula in C++ programme and can verify the results with the experimental data.
- 3. The students can multiply matrices, find sum of series, solve quadratic equation using C++ programme

S. No	Title of the Programme	Outcomes
1	Write a C++ program to a. Arithmetic operations--use do whileloop, b. To test the validity of any entered character whether it belongs to the alphabetical set or a number or a specialcharacter.	The students can test the validity of any entered character
2	Write a C++ Program to find the sum of series using for loop, a .sum=1+3+5+ +n. b.Sum=1 ² +2 ² +4 ² + ... +n ²	The students can learn how to create a for loop in C++
3	Write a C++ Program to find the factorial of a number by using function declaration with/without using the return statement	The students can calculate Factorial in C++ in different Various methods with proper codes and outputs
4	Write a C++ Program to read a set of numbers from a standard input device and to find out the largest number in the given array using function declaration. Also sort them in the ascending or the descending order.	The students can implement your own sorting method and use it inside main
5	Write a C++ Program to read the elements of the given two matrices of order m*n and to perform the matrix addition and display the transpose of the result	The students can calculate the element of 2 matrix and Transpose
6	Write a C++ Program a) To display the name of the day in a week depending upon the number entered through key board using Switch-Case statement b) To read the data variables (such as Day, Month and Year) of the class by the member function and display the contents of class objects on the screen in the format DD/MM/YYYY.	The students can learn the how to display on the date month year to display the C++ Programme
7	Write a C++ Program to generate a series of Fibonacci numbers using constructor	The students can create the program of Fibonacci numbers
8	Write a C++ Program to read the following information fromthe keyboard in which basic class consists of Name, Roll No. and Sex. The derived class contains the data members Heightand weight. Display the contents of the class. Use inheritance concept.	The students can learn the total students details and display using C++ program
9	Write a C++ Program a. An OOP to find the period of a pendulum of given length L, in a gravitational field. Accept the required values using the keyboard. Also display the results. b. Develop a program in C++ to calculate the Young’s modulus ofa material from the data obtained from uniform bending method.	The students can calculate the period of pendulum, to learn the Physics formulas apply on the C++ program
10	Write a C++ Program to Solve Quadratic equation	The students can know the quadratic equation in the C++ program
11	Write a C++ Program to Multiplication of two matrices	The students can test the two matrix of multiplication
12	Write a C++ Program Define a class to represent a bank account details, Data members, 1.Name of the depositor,2.Account name, 3.Type of account, 4.Balance amount in the account. Member function, 1. To assign initial values, 2. withdraw an amount3. to display name and balance	The students can display the bank Details in C++ Program

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Programming in Ansi C	E. Balagurusamy	2010 (5)	Tata McGraw Hill Pub
2	Visual Basic with Access, Registrar	G. Padmavathi	2005 (1)	Tata McGraw Hill Pub


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(An Autonomous Institution)
(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)
TIRUNELVELI – 627 011
DEPARTMENT OF PHYSICS

Certificate Course in Space Physics Even Semester 2019-20

5. CHAIR PERSON OF THE COURSE

Smt. S. Magara Jothi Lakshmi
Head & Assistant Professor
Department of Physics
Sri Sarada college for women,
Tirunelveli.

6. COURSE TEACHER

Selvi. A. Subitha
Assistant Professor
Department of Physics
Sri Sarada college for women,
Tirunelveli.

7. COURSE TITLE

Space Physics

8. OUTCOME OF THE COURSE

- To understand the theory of the dynamic behaviour of plasma.
- To gain a deep understanding of magnetized planet atmospheres and energy transport in the sun-earth system.
- To study the knowledge about physical phenomena in the magnetized part of the earth's surroundings that affect technological systems in space and on the ground.
- To learn the different measuring methods for plasma parameters, and about developing electronics for measurement purposes.

9. SYLLABUS /UNITS

UNIT-1: UNIVERSE

Planets - extra solar planets -star and star clusters -supernovae-black holes- galaxy3 - bang-van allen belts-aurora.

UNIT-2: COMETS, METEORS, ASTEROIDS

Composition and structure of comets-periodic comets-salient features of asteroids, meteors-uses.

UNIT-3: SUN

Structure of photosphere, chromospheres, corona-sunspots, sunflares-satellit of planets-structure, phase, features of moon.

UNIT-4: STARS

Constellations-binary stars-origin and types-types of galaxies-black hole and worm holes introduction-supernovas and neutrons stars.

UNIT-5: ORIGIN OF UNIVERSE

The beginning of life-big bang theory-pulsating theory-steady state theory- composition of universe expansion.

Text Books:

1. Satellite Operations, John T. Garner and Malcolm Jones 1990.

Reference books :

1. Fundamentals of Space systems, V. L. Pisacane and R.C. Moore, Oxford University Press, 1994
2. Encyclopedia of space, Heather couper, Niqel henbest Publisher: Dorling Kindersley, 2009
3. Concepts in Space Science Edited by R.R. Daniel, 2009.

10. ELIGIBILITY FOR ADMISSION

+2 Or Equivalent were eligible

11. DURATION OF THE COURSE

30 Hours

12. COMPONENTS OF EXAMINATION

- Theory -75 Marks
Assignment – 5 Marks
Quiz – 10 Marks
Presentation – 10 Marks

13. GRADING SYSTEM AND CERTIFICATION - Overall Grade

Marks	Grade
91 – 100	H
81 – 90	D+
71 – 80	D
61 – 70	A
51 – 60	B
41 – 50	C+
35 – 40	C

14. MODEL QUESTION PAPER

Multiple Choice Question	10 X 1 = 10
Answer the following in 250 words	5 X 5 = 25
Answer the following in 600 words	5 X 8 = 40
Total	75

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Institution recognized u/s 2(f) and 12(B) of UGC & Reaccredited with “A” grade by NAAC
TIRUNELVELI – 627 011
DEPARTMENT OF PHYSICS
CERTIFICATE PROGRAMME
CERTIFICATE IN MEDICAL PHYSICS AND ITS INSTRUMENTATION

Course Title:
Medical Physics and its instrumentation

- 1.Objectives:**
1. The purpose of this course is study to laser, MRI, PET.
 2. Student can gain the knowledge about the instrumentation to use to medical field.
 3. Student learned to the principle of operating instrument to medical science.

- 2.Outcome of the Course:**
- The students can
- 1.learn basic design principles of medical instruments and theircomponents
 - 2.know about electrocardiography – Principles, Leadconfiguration.
 - 3.study about electrocardiography – Brain waves, Placement of electrodes andanalysis
 - 4.Gain knowledge about operation theatre equipments, surgicaldiathermy.

- 3.Syllabus/Units:**
- Unit I Medical instruments:** Introduction – Design of Medical Instruments – Components of Bio- Medical Instrument system.
- Unit II Electrocardiography (ECG):** Origin of cardiac action potential ECG lead configuration – Block diagram of ECG- Recoding set up
- Unit III Electroencephalography (EEG):** Origin of EEG–Brain waves – Placement of electrodes Recording set up – Analysis of EEG
- Unit IV Operation theatre equipment:** Introduction – Surgical diathermy – Ventilators – Suction Machine, Autoclave, H.P. Sterillizer (Vertical and Horizontal)
- Unit V Advances in biomedical instrumentation:** Lasers in Medicine (Basic principle of laser action, Laser instrumentation, Advantage of Laser surgery)-Nuclear Imaging Techniques-Magnetic Resonance Imaging (MRI) (Magnetic Resonance phenomenon, MRI instrumentation) – Positron Emission Tomography (PET).

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Bio-Medical Electronics & Instrumentation	Prof. S.K.Venkata Ram	2009	Chand & Co

- 4. Eligibility forAdmission**
Minimum +2 (open to all on their options)
- 5. Duration of theCourse:**
35 hours (1 semester)
- 6. Examination/ Evaluation**
Components

Internal 40	External 60
Average of two tests = 20 marks Assignment = 5 marks Quiz =5 marks Field Visit/ Case Study – Record = 10 marks	Section A- True or False = 10 marks Section B- 5 out of 8 (4 marks) = 20 marks Section C- 3 out of 5 (10 marks) = 30 marks


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(An Autonomous Institution)
(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)
Institution recognized u/s 2(f) and 12(B) of UGC & Reaccredited with “A” grade by NAAC (A branch of Sri
Ramakrishna Tapovanam, Tirupparaithurai)
Ariyakulam, Thoothukudi NH, Maharaja Nagar Post, Tirunelveli-627011
DEPARTMENT OF PHYSICS
DIPLOMA PROGRAMME
DIPLOMA IN SOLAR ENERGY

1. Course

Title:
Solar Energy

2. Objectives:

- 1. Students learn how to establish India as a global leader in solar energy.
- 2. Disseminate information on renewable energy and energy efficiency
- 3. To encourage the preferential use of renewable energy in India.

3. Outcomes of thecourse

- 1. To familiarize the solar radiation andimportance
- 2. To study different solarcollectors
- 3. To get knowledge about airheater
- 4. To develop the solar energy startingdevices

4. Syllabus/Units:

Unit I: The structure of the sun – The solar constant – Solar radiation outside the Earth’s atmosphere – Solar energy measuring equipments – Pyranaometers – Sunshinerecorder
Unit II: General description of flat – plate collectors – Effect of dust and shading – Selection of materials for flat-platecollectors
Unit III: Solar collectors – Focusing type – Introduction – solar concentrators and Receiver Geometries
Unit IV: Solar cell modules – Advantages and Disadvantages of Photovoltaic Solar energy conversion – Applications of Solar Photovoltaic system – PV Technology in India
Unit V: Some additional methods of solar energy utilization – solar furnace – solar cooking –application of solar energy in space

Reference books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Solar energy utilization	G.D.Rai	2006 (5)	Khanna Publishers,Delhi.
2.	Non-conventional Energy sources	G.D.Rai	2005	Khanna Publishers,Delhi.

5. Eligibility forAdmission

Minimum +2 (open to all on their options)

6. Duration of theCourse:

35
7.
Components

hours (1 semester)
Examination/
Evaluation

Internal 40

Average of two tests = 20 marks
Assignment = 5 marks
Quizt =5 marks
Field Visit/ Case Study – Record = 10 marks

External 60

Section A- True or False = 10 marks
Section B- 5 out of 8 (4 marks) = 20 marks
Section C- 3 out of 5 (109 marks) = 30 marks


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TIRUNELVELI – 627 011
DEPARTMENT OF PHYSICS
CERTIFICATE PROGRAMME
CERTIFICATE IN BASICS OF PHYSICS CONCEPTS

Course Title:
Basics of physics concepts

- 1.Objectives:**
- 1.Students to gain the many information of fundamental in physics.
 - 2.The purpose of this course is study to physics relate to everyday life.
 - 3.Students learned to the information for matter

- 2.Outcome of the Course:**
- 1.The students can understand the theory of the Fundamentals ofPhysics
 - 2.The students can gain knowledge about physics laws andproperties

- 3.Syllabus/Units:**
- Unit I** Motion – speed, velocity, acceleration – force – equations of motion – Newton’s laws –momentum –work power and energy – conservation of energy andmomentum
- Unit II** Three states of matter – binding forces – fluid pressure and thrust – applications –pascal law-Archimedes principle
– surface tension – capillary action – pitot’s tube
- Unit III** Measurement of heat and temperature – clinical thermometer – heat transfer – thermos flask – change of state – heat engines sound and music –acoustics of building
- Unit IV** Reflection and refraction – concave and convex mirrors and lenses –dispersion – spectra – rainbow – interference – diffraction – polarization – concepts with examples – uses
- Unit V** Electrical field – potential –Ohm’s law electrical energy and power – resistance – types of resistance – resistance in series and parallel – Kirchoff’s law’s

4.Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Properties of matter	R.Murugesan	2007	S Chand & Co. Pvt. Ltd., NewDelhi
2.	Electricity and Magnetism	R.Murugesan	2007	S Chand & Co. Pvt. Ltd., NewDelhi
3.	Heat and thermodynamics	Brijilal and Subramaniyam		S Chand & Co. Pvt. Ltd., NewDelhi
4.	Optics by Subramanian	Brijilal and Subramaniyam	1990	S Chand & Co. Pvt. Ltd., NewDelhi

5.Eligibility forAdmission
Minimum +2 (open to all on their options)

6.Duration of theCourse:
35 hours (1 semester)

7.Examination/ Evaluation Components

Internal 40

Average of two tests = 20 marks
Assignment = 5 marks
Quiz =5 marks
Field Visit/ Case Study – Record = 10 marks

External 60

Section A- True or False = 10 marks
Section B- 5 out of 8 (4 marks) = 20 marks
Section C- 3 out of 5 (109 marks) = 30 marks


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DEPARTMENT OF PHYSICS

NON-CONVENTIONAL ENERGY SOURCES –DIPLOMA COURSE 2020-2021

1. Course Title:

Non-conventional energy sources

2. Objectives:

1. Students gain the knowledge about the non-convention energy sources.
2. Student have been executing this information to higher studies for develop energy creators.
3. Students learned about the information of geothermal energy

3. Outcomes of thecourse

- The students can able to learn the basic principles, theory and concepts of Energysource.
- The students gain knowledge in various sources andapplications.

4. Syllabus/Units:

Unit I: Solar Energy

Solar radiation and its measurements – solar, cells : Solar cells for direct conversion of solar energy to electric powers – solar cell parameter – solar cell electrical characteristics -Efficiency – solar water Heater – solar distillation – solar cooking – solar green house.

Unit II: Fossil fuels

Fossil fuels – coal, oil and natural gas – availability – statistical details – applications – merits and demerits

Unit III: Biomass energy

Biomass energy – biomass classification – biomass conversion process – biogas plants – Deena bandhu model gas plant – Wood gasification – advantages and disadvantages of biomass

Unit IV: Renewable energy sources

Renewable energy sources – solar energy – importance – storage of solar energy – applications of solar energy – solar water heater – solar cookers – solar green house –solar cell

Unit V: Geothermal energy

Geothermal energy – Geothermal power plant – Wind energy and wind farms – wind mills –types – ocean thermal energy conversion- energy from tides – energy from waves

Reference books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Non – conventional energy sources	G.D Rai	2006	Khanna Publishers, NewDelhi
2.	Solar energy	M P Agarwal	2004	S Chand&Co.Ltd.
3.	Solar energy	Suhas P Sukhative	2005	Tata Mc Graw-Hill Publishing Company Ltd., NewDelhi

5.Eligibility forAdmission

Minimum +2 (open to all on their options)

6.Duration of theCourse:

35

ours (1 semester)

7.Examination/ Evaluation Components

Internal 40

Average of two tests = 20 marks
Assignment = 5 marks
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Section A- True or False = 10 marks
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TIRUNELVELI – 627

DEPARTMENT OF PHYSICS - PG
Course Structure (w.e.f 2019-2021)

Sem	Part	Category	Course Code	Course title	Hours/week			Credits	Page No
					L	P	T		
1	I	Core 1	19PPHC11	Classical Mechanics	6		6	4	51
1		Core 2	19PPHC12	Mathematical Physics I	6		6	4	52
1		Core 3	19PPHC13	Integrated Electronics	5		5	4	53
1		Core 4	19PPHC14	Non-Linear Dynamics	5		5	4	54
1		Core Practical 1	19PPHCL11	Advanced Physics Practicals I		4	4	2	55
1		Core Practical 2	19PPHCL12	Electronics Practicals I		4	4	2	56
				Sub Total	22	8	30	20	
2	I	Core 5	19PPHC21	Mathematical Physics II	5		5	4	58
2		Core 6	19PPHC22	Condensed Matter Physics	5		5	4	59
2		Core 7	19PPHC23	Microprocessor 8085 and Microcontroller8051	4		4	4	60
2		Core 8	19PPHC24	Numerical Methods and C++ Programming	4		4	4	61
2		Core 9	19PPHFW	Field work	4		4	4	62
2		Core Practical 3	19PPHCL21	Advanced Physics Practicals II		4	4	2	63
2		Core Practical 4	19PPHCL22	Electronics Practicals II		4	4	2	64
				Sub Total	22	8	30	24	
Sem	Part	Category	Course Code	Course title	Hours/week			Credits	
					L	P	T		
3	I	Core 10	19PPHC31	Quantum Mechanics I	5		5	5	65
3		Core 11	19PPHC32	Electromagnetic Theory	5		5	4	66
3		Core 12	19PPHC33	Statistical Mechanics	5		5	4	67
3		Core 13	19PPHC34	Research Methodology	5		5	4	68
3		Core 14	19PPHPWV	Project	6		6	6	69
3		Core Practical 5	19PPHCL31	Advance Physics Practicals III		4	4	2	70
				Sub Total	26	4	30	25	
4	I	Core 15	19PPHC41	Quantum Mechanics II	6		6	5	71
4		Core 16	19PPHC42	Spectroscopic Techniques	6		6	4	72
4		Core 17	19PPHC43	Nuclear and Particle Physics	5		5	4	73
4		Core Elective 1	19PPHE41/19PPHE42/19PPHE43	Nano Physics/ Renewable Energy Sources/ Material Science	5		5	4	74
4		Core Practical 6	19PPHCL41	Advance Physics Practicals IV		4	4	2	75
4		Core Practical 7	19PPHCL42	Microprocessor Practicals and C++ Programming		4	4	2	76
				Sub Total	22	8	30	21	
				Total	92	28	120	90	

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N. Kamala
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Programme outcomes (PO):

Pos describe what students are expected to know or able to do by the time of graduation. The Programme Outcomes of PG in Physics are:

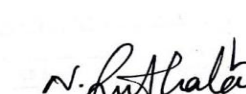
- PO1 Demonstrate, solve and an understanding of major concepts
- PO2 Solve the problem and also think methodically, independently and draw a logical conclusion
- PO3 Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results
- PO4 Create an awareness of the impact of Physics on the society, and development outside the scientific community
- PO5 To inculcate the scientific temperament in the students and outside the scientific community

Programme specific outcomes

- PSO 1 Disciplinary knowledge and skills: Capable of demonstrating (i) good knowledge and understanding of major concepts, theoretical principles and experimental findings in Physics and its different subfields
- PSO 2 Ability to employ critical thinking and efficient problem solving skills in all the basic areas of Physics
- PSO 3 Sense of inquiry: Capability for asking relevant/appropriate questions relating to the issues and problems in the field of Physics, and planning, executing and reporting the results of a theoretical or experimental investigation
- PSO 4 Digitally Efficient: Capable of using computers for simulation studies in Physics
- PSO 5 Capable of demonstrating ability to think and analyze rationally with modern and scientific outlook and identify ethical issues


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SEMESTER I

Programme : M.Sc.	Subject : Physics
Course Code :19PPHC11	Course Title : Classical Mechanics
Category : Core 1	Credits : 4 Hours: 6 hrs

Objective:
To demonstrate knowledge of understanding in dynamics of system particles and motion of rigid body
To gain the knowledge in Lagrangian and Hamiltonian formulation of mechanics.

Outcome:
Students have a deep understanding of Newton’s laws.
Understand the foundations of chaotic motion.

Unit	Detailed syllabus (all units of same size and duration)	Hours
1	Fundamental Principles and Lagrangian Formulation Mechanics of a particle and a system of particles - Conservation laws - Constraints - Generalised Co-ordinates - Transformation equations, configuration space, Generalized Notations - Principle of Virtual work - D’Alembert’s principle and Lagranges equations - Applications of Lagrange’s equations - Hamilton’s principle - Lagrange’s equation from D’Alembert’s principle.	12
2	Motion Under a Central force : Two body problem Equivalent one body problem - General features of Central force motion - Reduction of two body problem to one body problem - Equivalent one dimensional problem - General features of the orbits – Differential equation for the orbit - Motion under inverse square law - Kepler problem - Virial theorem - Unbound motion Rutherford scattering.	12
3	Rigid Body Dynamics Mechanics of a rigid body - Displacement of a rigid body - Orthogonal transformation - Eulerian angles - Infinitesimal rotation - Coriolis effect - Kinematics of a rigid body moments and products of inertia - Principal axes of inertia – The momental ellipse – theorem of parallel axis- K.E.of a rigid body - Euler’s equation of motion - Torque free motion.	12
4	Hamilton’s Formulation Hamilton’s equation from variational principle - Principle of least action – ApplicationsLegendre transformation - Canonical transformations – Generating function and its type-conditions for a transformation to be canonical - properties of poisson and lagrange brankets - Lagrange and Poisson brackets - Equation of motion and conservation theorems in Poisson’s brackets - Hamilton Jacobi method - Application to Harmonic osciallator - Hamilton’s characteristic function - Separation of variable - Action angle variables - Kepler problem in action angle variables.	12
5	Mechanics of Small Oscillations Stable and unstable equilibrium - Formulation of the problem - Lagrange’s equation of motion for small oscillations - Properties of T,V and w - Normal Co-ordinates and normal frequencies of vibration - Double pendulum - Example of the double pendulum as a coupled oscillator - Example of triple pendulum as a generate system. Free vibrations of linear triatomic molecule.	12

REFERENCE BOOKS

S.No	Title of the Book	Author	Edition & year	Publication
1	Classical Mechanics	Helbert Goldstein, Charles P.Poole John Safo,	3 rd & 2011	Pearson, Chennai.
2	Classical Mechanics	Gupta Kumar, Sharma,	26 th & 2014	Prakati Prakasham, Meerut.
3	Classical Mechanics	V.B. Bhatia	1 st & 1997	Narosa Prentice Hall
4	Classical Mechanics	K. Sankara Rao	2 nd &2005	Narosa Prentice Hall


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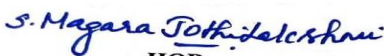
SEMESTER I			
Programme : M.Sc.	Subject : Physics		
Course Code : 19PPHC12	Course Title : Mathematical Physics I		
Category : Core 2	Credits : 4	Hours: 6 hrs	

- Objective:**
- To familiar with the main mathematical methods used in Physics
 - To develop the skills to solve problems in quantum mechanics, electrodynamics and other fields of theoretical Physics.
- Outcome:**
- Have deep Knowledge about vector analysis and matrices.
 - Gain knowledge in special functions and Fourier’s Integral Transforms.

Unit	Detailed syllabus (all units of same size and duration)	Hours
1	Vector Analysis Important vector identities-Gauss divergence theorem - Deductions from Gauss divergence theorem – Stoke’s theorem- Deduction from Stoke’s thorem- Green’s theorem - Green’s theorem in a plane - Classification of vector fields.	12
2	Matrices Transpose of matrix- The conjugate of matrix- The conjugate Transpose- Eigen values; Eigen Vectors - Characteristic equation of matrix - Cayley Hamilton theorem - Some important theorems of eigen values and eigen vectors – Rank of matrices- diagonalisation of matrices - Differentiation and integration of matrices - Power of matrices - Exponential of a matrix - Matrices in Physics.	12
3	Special Functions Bessel differential equation and Bessels’ function of I Kind - Bessels’ function of II Kind – Limiting values of Jn(x) and Yn(x)-Generating function - Recurrence relations - Laguarre’s differential equation and Laguerie polynomial - Generating function - Recurrence relations.	12
4	Fourier’s Integral Transforms Introduction - Fourier’s transform (FT) - Properties of FT – Modulation Theorem- Convolution theorem- Parsevals theorem- FT of a derivative - Fourier sin and cosine transforms of derivatives - FT of functions of two or three variables - Finite FT - Simple applications of FT	12
5	Laplace Integral Transforms Laplace Transform (LT) - Properties of LT – Laplace Transform of Integral- LT of derivation of a function - LT of periodic functions – Some special function- Properties of inverse LT - Convolution theorem - Evaluation of inverse LT by convolution theorem - Application of LT.	12

REFERENCE BOOKS

S.No	Title of the Book	Author	Edition & year	Publication
1	Mathematical Physics	Sathya Prakash	6 th & 2012	Sultan chand & sons, New Delhi.
2	Applied mathematics for Engineer and Physics	Louis A.Pipes, Lawrence R.Harvill	2 nd &1970	Mc Graw Hill Ltd
3	Mathematical Physics	Brijlal & Subramanian,	2 nd &1968	Addision Wesley
4	Schaum’s outline for vector	Speigel	4 th & 1997	Addision Wesley
5	Mathamatical methods for Physicists	Weberd Arfen	7 th & 1997	McGraw-Hill ,India.
6	Mathamatical methods for Physics and Engineering	K,F. Riley, M.P. Hooson, S.J. Bence	3 rd & 2001	Addision Wesley



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Programme : M.Sc.	Subject : Physics
Course Code : 19PPHC13	Course Title : Integrated Electronics
Catagory : Core 3	Credits : 4 Hours: 5 hrs

Objective:

- 1. To acquire knowledge and apply it to various electronics instruments.
- 2. To motivate the students to apply the principles of electronics in their day to day life.

Outcome:

- 1. Have a deep knowledge about the concepts and terminology of digital electronics.
- 2. The ability to understand analyze and design various combinational and sequential circuits.

Unit	Detailed syllabus (all units of same size and duration)	Hours
Unit I : Devices, applications and Integrated Circuits		
1	FET-Types of FET-Characteristics and Applications of FET, MOSFET- SCR, DIAC,TRIAC-High frequency device-Integrated Circuits-IC Fabrication Technology – Steps in Fabrication - Integrated Resistors and Capacitors-VLSI Technology.	12
Unit II : Digital electronics		
2	Logic Families – DTL, RTL,TTL, ECL, I2L,CMOS,NMOS and PMOS – DTL type AND, OR, NAND and NOR gates – RTL and TTL type NAND - CMOS NOR and CMOS NAND – Flip Flops: RS-RST-D- JK- JK Master/Slave- Asynchronous Counters and Synchronous Counters <u>UP and DOWN Counter</u> , <u>Modulus Counter</u> – Registers.	12
Unit III OP-AMP and applications		
3	Characteristics and Parameters –DC Analysis of IC OPAMP- Applications of OPAMP - Instrumentation amplifier –Sample and Hold System- Analog Multiplexer – Integrator – Differentiator- <u>Clipping and Clamping Circuits</u> - Design of Analog circuits for the solution of Simultaneous and Differential Equations- Filters: First and Second order LOW,HIGH and BAND pass filters.	12
Unit IV Timer, VCO, PLL and applications		
4	Timer–555 Timer IC–Internal Architecture and Working–Modes of Operation: Monostable and Astable operation- Applications–Voltage Control Oscillator - IC 566–PLL Concept–PLL IC 565 – Application- Frequency multiplexer – <u>Demultiplexer</u> – <u>Frequency Modulation and Demodulation</u> = FSK Modulation and Demodulation.	12
Unit V Electronic measurement and control		
5	Sensors and Transducers – Measurement and Control – Signal Conditioning and Recovery –Impedance Matching – Amplification (Op amp based Feedback amp, Instrumentation Amp) – Noise and Noise Sources -Filtering and Noise Reduction – Shielding and Grounding – Fourier Transform – Lock- in Detector/Amplifier - Box-Car Integrator or Averager – Modulation Techniques.	12

REFERENCE BOOKS

S.No	Title of the Book	Author	Edition & year	Publication
1	Integrated Electronics Analog and Digital Circuits and Systems	Jacob Millman, Christos C Halkias, Chetan Parikh	2 nd edition	Tata McGraw Hill Education Private Limited, NewDelhi.
2.	Introduction to Integrated electronics(Digital & Analog),.	V.Vijayendran	Reprint 2008	S.Viswanathan, Printers & Publishers Private Ltd,
3	Analog and Digital Electronics	U.A. Bakshi, A.P.Godse,	3 rd edition 2008	Technical Publications, Pune.
4	Introduction to Semiconductor Devices	M.S.Tyagi, John	1 st edition 1991	Wiley and Sons.
5	Electronics	P.P.L. Regtien	1 st edition 2005	VSSD Publications,


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SEMESTER I

Programme : M.Sc.	Subject : Physics
Course Code : 19PPHC14	Course Title : Non-Linear Dynamics
Category : Core 4	Credits : 4 Hours: 5 hrs

Objectives:

- 3. To introduce and describe nonlinear phenomena in Physical systems
- 4. To introduce the analysis and visualization of the complex behaviour of dynamical systems

Outcome:

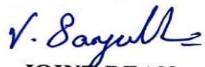
- 1. Have knowledge about nonlinearity and oscillators.
- 2. Understand the ideas about Fractals and Solitons.

Unit	Detailed syllabus (all units of same size and duration)	Hours
1	Nonlinearity, linear and nonlinear oscillators Dynamical systems-linear and nonlinear forces-Mathematical implications of nonlinearity- Working definition of nonlinearity- Effects of nonlinearity-Linear oscillators and predictability- Damped and driven nonlinear oscillators-linear and nonlinear rotor dynamics-static electric spring and nonlinear oscillation-oscillation and waves in linear and nonlinear systems.	12
2	Equilibrium points, bifurcations and chaos Equilibrium points-General criteria for stability-Classification-Some simple bifurcations - Saddle node, pitch fork, transcritical and Hopf bifurcations-Discrete dynamical systems-Logistic map-Equilibrium points and their stability-period doubling phenomenon-chaos-introduction to applied nonlinear dynamical system and chaos-chaotic system with different shapes of equalibria-simple chaotic flows with one stable equilibrium.	12
3	Chaos in nonlinear electronic circuits Linear and nonlinear circuit elements-nonlinear circuits-Chua’s diode-Autonomous case-Bifurcations and chaos-Chaotic dynamics of MLC circuit-Analogue circuit simulation-Some other useful nonlinear circuit - Colpitt’s oscillator-choatic signal analysis and processing-empirical methods for studying chaotic system-electronic circuits generating chaos.	12
4	Fractals Self similarity-Properties and examples of fractals-Fractal dimension-Construction and properties of some fractals- Middle one third cantor set-Koch curve-Sierpinski triangle-Julia set Mandelbrot set-Applications of fractals-different types of fractals-introduction to fractal geometry-fractal equation and examples.	12
5	Solitons Linear waves-Linear non dispersive wave propagation-Linear dispersive wave propagation-Nonlinear dispersive systems-Korteweg de vries equation- solitary and cnoidal waves-Numerical experiments of Zabusky and Kruskal-birth of solitons— Properties of solitons -applications of solitons-optical solitons-spin wave envelope solitons-nonlinear optical devices using glasses.	12

REFERENCE BOOKS

S.No	Title of the Book	Author	Edition & year	Publication
1	Nonlinear dynamics, Integrability, Chaos, Patterns	M.Lakshmanan and S.Rajasekar	3 rd &2003	Springer, Berlin.
2	Chaos in nonlinear oscillator, controlling and synchronization	M.Lakshmanan and K.Murali	2 nd &1997	World Scientific, Singapore.
3.	Deterministic chaos	H.G.Schuster	2 nd &1998	Verlag,Weinheim.
4.	Computer Simulation for Fractals and chaos.	Harvey Gould & Jan Tobochnik	3 rd &2006	Springer, Berlin.


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PPH – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVEL –
627011
SEMESTER – I

Programme : M.Sc.	Subject : Physics
Course Code : 19PPHCL11	Course Title : Advanced Physics Practicals I
Category : Core Practical 1	Credits : 2 Hours: 4 hrs

Objectives:

1. To introduce the basic concepts of physics through hands on experience and impart experimental skill to students

Outcome:

1. The student will be able to understand the fundamental physics behind many scientific discoveries through hands on experience.

General Physics Experiments I
(Any 5 Experiments)

1. Susceptibility

- a. Determination of susceptibility of the given paramagnetic solution by Quinke’s Method for various normalities
b. Determination of Magnetic Moment and Bohr Magnetron from graph and by calculation for various normalities.

2. Cauchy’s Constant

- a. Determination of Cauchy’s Constant by spectrometer.
b. Verification of the experimental result with graphically obtained value.

3. Michelson’s Interferometer- Determination of wavelength of a source and thickness of a thin transparent medium by forming interference pattern.

4.Anderson’s Bridge - Determination of self inductance of the given coil - (different turns/coil).

5. Force Constants -Calculation of force constants of a molecule from the vibrational spectral data- At least 3 spectrum

6. Solar Absorption Spectrum

- a. Importance of Solar Absorption spectrum and Fraunhofer lines
b. Determination of wavelength of various absorptions.

7. Thickness of a thin material/ diameter of a thread

- a. Determination of thickness of a very thin material or diameter of a thread using LASER diffraction and also by Air wedge method.
b. Comparison of the results-variation in thickness/diameter with Load.


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SEMESTER – I

Programme : M.Sc.	Subject : Physics
Course Code : 19PPHCL12	Course Title : Electronics Practicals I
Category : Core Practical 2	Credits : 2 Hours: 4 hrs

- Objectives:**
- To introduce the various concepts of basic electronics and circuits through hands on experience.
- Outcomes:**
- The student will be able to understand the fundamental physics behind electronic circuits used in many modern devices through hands on experience.

Electronics Experiments - I

(Any 5 Experiments)

- 1. Series Voltage Regulator**
- a. Construction of a series voltage regulator using transistor (as an error amplifier) - study the regulation
 - b. Factors (line regulation, load regulation) - to find out the percentage of regulation.
- 2. Schmitt Trigger**
- a. Designing of a Schmitt trigger circuit using transistors - Trace the input and output waveforms
 - b. Draw Hysteresis curve and calculate hysteresis voltage both theoretically and experimentally.
- 3. Wave Form Generators**
- Construction of a triangular and a ramp wave generator using OP Amp and construction of 5555 timer based square wave generator. Theoretical calculation of the frequency of the output wave for various R and C values with experimental verification.
- 4. Counters and Decoders**
- Construction and study of Modulus countrs (2 to 9) using IC 7490 or any equivalent IC. Use a 7 segment decoder and a 7 segment display to show output.
- 5. Analog to Digital Conversion**
- Construction of ADC converter using Comparator and an Encoder ICs - Measurement of the digital outputs for various input voltages - Resolution measurement.
- 6. Construction of Constant Current Source**
- Construction of a constant current source using OP Amp and transistor/ FET(floating and grounded load). IR characteristics
- 7. FET Characteristics and Amplifier**
- Drain and Transfer characteristics of FET - FET parameters from the characteristics. Designing of a voltage amplifier using FET - Frequency response and bandwidth of the amplifier.


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SEMESTER II

Programme : M.Sc.	Subject : Physics

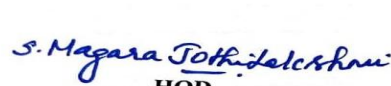
Course Code : 19PPHC21	Course Title : Mathematical Physics II
Category : Core 5	Credits : 4 Hours: 5 hrs

- Objectives:**
- To understand the relation between the physical phenomena and their mathematical idealization.
 - To have concrete knowledge in the solution of project with this and preparation of the report.
- Outcomes:**
- Physics candidate should be able to understand basic theory of vector and tensor analysis and functions of complex variables.
 - Physics candidate should be able to apply methods of functions of complex variables for calculations of integrals, and expand functions in Taylor’s Series.

Unit	Detailed syllabus (all units of same size and duration)	Hours
1	Complex analysis Complex numbers -Functions of complex variable –Limit, continuity and Differentiability- Analytic functions - Cauchy -Riemann differential equation - Harmonic functions - Cauchy’s integral theorem - Cauchy’s integral formula - Derivatives of analytic functions – Singularities of an Analytic Function-Residues and their evaluations - Cauchy’s residue theorem.	12
2	Group theory Concept of a group - Abelian group – The generators of Finite Group- Cyclic group Rearrangement Theorem- Subgroup - Coset - Classes Conjugate subgroups - Isomorphism and homomorphism – Cayley’s Theorem-Reducible and irreducible representations - Some important theorems on representations - Orthogonality theorem.	12
3	Special functions II Introduction - Legendre differential equation and Legendre polynomial - Generating functions – Rodrigue’s formula- Orthogonal properties-Recurrence relations – Laplace’s Integrals relation-Hermite differential equation and Hermite polynomial Generating function - Recurrence relations.	12
4	Partial Differential Equations Solution of Laplace’s Equation in Cartesian coordinates -Solution of heat flow equation (Method of separation of variables) – Linear flow in semi infinite solid : Temperature on one face given as sinusoidal function of time – Variable linear flow in an infinite bar – two dimensional heat flow - three dimensional heat flow – Heat flow in circular plate (use of cylindrical co ordinates) – Equation of motion for the vibrating string –D’Alembert’s solution- Vibrations of a rectangular membrane - Vibrations of a circular membrane-Waveguides	12
5	Tensor analysis Introduction – Kronecker Delta symbol- Scalar, contra-varient and co-varient vectors - Tensor of higher ranks-Algebraic operations of tensors - Symmetric and anti symmetric tensor – Conjugate Tensors-Fundamental tensor – Laws of covariant differentiation -Tensors in dynamic of a particle - Tensors in elasticity - Moment of inertia tensor.	12

REFERENCE BOOKS

S.No	Title of the Book	Author	Edition & year	Publication
1	Mathematical Physics	Sathya Prakash	6 th & 2012	Sultan chand & sons, New Delhi.
2	Applied mathematics for Engineers and Physicists	Louis A. Pipes, Lawrence R. Harvill	3 rd &1970	Mc Graw Hill Ltd
3	Matrices and Tensors in Physics	A.W.Joshi,	3 rd & 1995	New Age International Publishers, New Delhi
4	Mathematical methods for Physicists	G. Arfken and H.J. Weber	1 st & 1995	Academic Press
5	Mathematical Methods for Physics and Engineering: A Comprehensive Guide	K. F. Riley, M. P. Hobson, S. J. Bence	3 rd & 2006	United States of America by Cambridge University Press, New York
6.	Group Theory and quantum mechanics	Michael Tinkham	Dover Edition, 1992	Mc Graw-Hill Book Company, New York


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SEMESTER II

Programme : M.Sc.	Subject : Physics

Course Code : 19PPHC22	Course Title : Condensed Matter Physics
Category : Core 6	Credits : 4 Hours: 5 hrs

- Objectives:**
- To study the macroscopic and microscopic Physics properties of matter.
 - To study some of the basic properties of the condensed phase of matter especially solids
- Outcomes:**
- Physics candidate will be able to understand the physics behind structural properties of the solids.
 - Physics candidate can pursue the research work in the field of material science and nanotechnology.

Unit	Detailed syllabus (all units of same size and duration)	Hours
1	Crystallography and crystal binding Classification of crystals - Two dimensional Bravais - Bravais lattices in 3 dimensional - crystals of inert gases-ionic crystals-covalent crystals-metals-hydrogen bonds-atomic radii-analysis of elastic strains-elastic compliance and stiffness constants-elastic wave in cubic crystals. Crystals of inert gases – Van der waal’s interaction – London interaction – Cohesive energy.	12
2	Lattice vibrations Lattice waves - properties of Lattice waves - vibratimal modes of a finite one - dimensional lattice of identical atoms - diatomic linear lattice - quantizaion of lattice vibrations - Lattice heat capacity - Einstein model - Debye model of the lattice heat capacity. phonons momontum - Inelastic scattering by phonons, by long wave length phonons- X rays by phonons- neutrons by phonons	12
3	Free electron theory, Energy bands and Semiconductor crystals Energy levels in one dimension- Fermi –Dirac distribution -free electron gas in three dimensions-heat capacity of the electron gas-Electrical conductivity and Ohm’s law-motion in magnetic fields-Hall effect-thermal conductivity of metals. Bloch functions-Kronig-Forder-magnons - antiferro magnetic order - Ferromagnetic domains - Origin of domains.	12
4	Forms of magnetism Langevin diamagnetism equation - Weiss theory - quantum theory of diamagnetism -quantum theory of paramagnetism - Demagnetization of a paramagnetic salt – Paramagnetic susceptibility of conduction electrons - Hund rules - Paramagnetic susceptibility of conduction electrons-ferromagnetic order-magnons - antiferro magnetic order - ferromagnetic domains - origin of domains.	12
5	Dielectrics, Ferroelectrics and Super conductivity Macroscopic electric field - Local field at an atom - Dielectric constant and polarizability - Claussius-Mosotti equation- Structural phase transitions - Ferroelectric crystals -Ferroelectric domains - Piezoelectricity - occurrence of superconductivity -Meissner effect - thermodynamics of superconducting transition - London equation - coherence length - BCS theory of superconductivity - Application of superconductors - single particle tunneling - DC Josepson and AC Josepson effects.	12

REFERENCE BOOKS

S.No	Title of the Book	Author	Edition & year	Publication
1	Introduction to Solid State Physics	Charles Kittel	7 th & 2007	Wiley India
2	Solid State Physics	R J Singh	1 st & 2012	Pearson First impression
3.	Solid State Physics	S. O. Pillai	5 th & 2006	New age international Publishers
4.	Elementary Solid State Physics	M. Ali Omar	1 st & 2002	Pearson


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Programme : M.Sc.	Subject : Physics
Course Code : 19PPHC23	Course Title : Microprocessor 8085 and Microcontroller 8051
Category : Core 7	Credits : 4 Hours: 4 hrs

Objectives:

1. To study about the architecture of Intel 8085 Microprocessor and its programming instructions.
2. To introduce the programming and interfacing techniques of 8086 microprocessor.

Outcomes:

1. Physics candidate should able to understand the 8085 Microprocessor and 8051 microcontroller and their architectures
2. Physics candidate should able to write an assembly level and C programs for interfacing

Unit	Detailed syllabus (all units of same size and duration)	Hours
1	Introduction to 8085 Microprocessor Pin diagram and description - Bus System, Control Signals, Status Signals- Clock System - Latching of Address Bus - Interrupt System - Direct Memory Access- Internal architecture - ALU- Registers organization – General purpose registers-Special purpose Registers and Counters - Flags - Program Status Word	12
2	Programming 8085 Assembly Language Programming - Assembler - Instruction Format of 8085-Instruction Set - Addressing Modes - Instruction Cycle, Machine Cycle and T-Slates - Timing Diagram of Opcode fetch, Read, Write machine Cycles and some basic Instructions - 8 bit and 16 bit addition and subtraction- Loops and Branching - Multiplication and Division in 8085-Searching and Sorting - Finding smallest/biggest number in an array – Ascending and Descending order-Time delay calculation- Stack and Subroutines - Software Interrupts and ISR- Data Transfer Schemes.	12
3	Interfacing and peripheral devices Address Space of 8085- Address space partition- Memory Interfacing - Memory map and Address decoding- Interfacing of RAM and ROM - I/O mapped I/O and Memory Mapped I/O interfacing Schemes - Ports- Interfacing chips: Nonprogrammable Port 8212 - Programmable Peripheral Interface (PPI) 8255 architecture, Control Signals and operating Modes - Programmable Interval Timer (PIT) 8253 .	12
4	Micro Controller 8051 Introduction - Comparison of Microcontroller & Microprocessor - Pin Diagram and description - Block Diagram of 8051 and Internal Architecture - Clocks - Registers- Flags-Internal Memory, SFR and I/O Ports - External Memory and decoding- Instruction Set and Addressing Modes of 8051- Features available in 8051: Timer and Counters, Timer Modes -Serial Port and Serial Data Transfer.	12
5	Micro Processor based system design and a Applications Design considerations - Sensors and Transducers - Sample and Hold Circuits- -Interfacing Keyboard and multiplexed seven segment displays – Interfacing Traffic light control-DAC and ADC interfacing - Square, Rectangular and Ramp Wave Generation - Temperature measurement and control - Digital Clock - Stepper Motor Control.	12

REFERENCE BOOKS:

S.No	Title of the Book	Author	Edition & year	Publication
1	Fundamentals of Microprocessor and Microcontroller	B. Ram	5 th & 2011.	Dhanpat Rai Publications
2	Microprocessor and microcontroller system	A.P. Godse , D.A Godse	1 st & 2014	Technical Publication, Pune
3	Microprocessor Architecture, Programming and Applications with the 8085	Ramesh S. Gaonkar	4 th & 1998	Penram International
4	The 8051 Microcontroller Architecture, Programming and Applications	Kenneth J. Ayala	3 rd & 2007	Penram International Publishing.
5	Advanced microprocessor and interfacing	Badri Ram	8 th edition 2017	Mc Graw Hill Education
6	8085 Microprocessor: Programming And Interfacing	N. K. Srinath	5 th edition 2005	PHI Learning Private Limited

   
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Course Code :19PPHC24	Course Title : Numerical Methods and C++ Programming		
Category : Core 8	Credits : 4	Hours: 4 hrs	

- Objectives:**
- 1. To articulate the tradeoffs between easy computation and accuracy.
 - 2. To provide fundamental idea about the use of computer programming and numerical methods for analyzing the basic engineering problems.

- Outcomes:**
- 1. Physics candidate should be able to use the bisection method, false position, Newton’s, Secant method to estimate the number of iterations in the algorithm to achieve desired accuracy with the given tolerance;
 - 2. Physics candidate will be able to write computer programs for numerical solutions for engineering problems like system of equations and heat equations.

Unit	Detailed syllabus (all units of same size and duration)	Hours
1	Roots of equations and eigen-value problems Newton-Raphson method. Secant Method. Muller’s Method - Lin -Bairstow’s Method. Linear Algebraic Equations: Gauss elimination - Gauss-Jordan - Gauss-Jacobi - Inverse of a matrix by Gauss Jordan elimination method- Bisection Method.	12
2	Curve Fitting / Interpolation Curve fitting: Linear Least square fitting - Nonlinear Fit- Fitting a Polynomial Function, Exponential function - Cubic spline fitting – Interpolation: Fundamental theorem of finite difference, Finite difference interpolation with equally spaced: Newton’s forward and backward difference formulae - Unequally spaced: Lagrangian interpolation formula - Hermite interpolation.	12
3	Numerical differentiation and integration Numerical Differentiation : Methods based on interpolation: non uniform & uniform nodal points - Methods based on finite differences: forward & backward difference formulae. Numerical Integration: Trapezoidal Rule, Simpson Rule - Monte-Carlo evaluation of integration. Methods based on undetermined coefficients: Gauss-Legendre, Gauss - Lagurre, Gauss - Hermite integration methods	12
4	Solution to ordinary and partial differential equations Ordinary Differential Equations- Taylor’s Series Method- Euler’s Method-Euler’s modified method - Runge -Kutta 2 nd and 4 th Order Methods- Multistep Method -Predictor- Corrector Methods-Solution to partial differential equations	12
5	C++ Programming applications Class and Object: Referencing class members, Member function defined outside the class , constructor and Destructors Programme structure: header files, local, global and static variables, input and output statements; Euler’s Method: Charging and discharging of a condenser; Runge-Kutta methods: Radioactive Decay; Newton-Raphson method: Solution van der Waals equation; Gauss elimination method: Currents in Wheatstone’s bridge; Linear fitting. - least square method : Cauchy’s constant; Simpson’s and Monte-Carlo methods : Evaluation of (integral) area under the curve;Eigenvalues and eigenvectors of symmetry matrices; Numerical differentiation: Newton’s Law of cooling	12

REFERENCE BOOKS

S.No	Title of the Book	Author	Edition & year	Publication
1	Numerical Methods for Scientific and Engineering computation	M.K.Jain, S.R.K. Iyengar, R.K. Jain	3 rd & 1998	New age international (P) Ltd, Chennai
2	Object Oriented Programming with C++	E.Balgurusamy	5 th & 2011	Tata McGraw Hill, New Delhi
3	Numerical Methods in Science and Engineering	M.K. Venketraman	2 nd & 2010	National Publishing Co., Chennai
4	Numerical Methods	P. Kandasamy, K. Thilagavathy, K. Gunavathy	12 th & 2009	S Chand & Company Pvt Ltd.


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Programme : M.Sc.	Subject : Physics
Course Code : 19PPHFW	Course Title : Field Work
Category : Core 9	Credits : 4 Hours: 4 hrs

Guidelines regarding Field work

1. Students will carry out field work in any one of the relevant subjects in second semester
2. Number of students under a given field work would be decided by the Head of Department
3. However, maximum number of students under this work should not cross3.
4. Within one month of the commencement of the new semester, each student will identify and confirm the selection of subject.
5. Students will be frequency evaluated by respective supervisor for the improvement of fieldwork analysis.
6. Remuneration to the examiners will be paid as per college norms.

Internal assessment marks (50 marks)

1.	Innovative ideas	: 10 Marks
2.	Individual effort	: 10 Marks
3.	Group activity	: 10 Marks
4.	Project Synopsis	: 10 Marks
5.	Evaluation by Guide	: 10 Marks

External assessment marks (50 marks)

6.	Project report	: 20 Marks
7.	Nature of work	: 10 Marks
8.	PowerPoint presentation	: 10 Marks
9.	Viva voce	: 10 marks

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SEMESTER II

Programme : M.Sc.	Subject : Physics
Course Code : 19PPHCL21	Course Title : Advanced Physics Practicals II
Category : Core Practical 3	Credits : 2 Hours: 4 hrs

Objective

➤ To provide different practical, intellectual and transferable skills.

Outcome:

➤ Gain the knowledge in advanced technique of Physics and Science methodology.

(Any 5 Experiments)

1. Hyperbolic fringes

Determination of Young’s modulus, Bulk modulus, Rigidity modulus, poisson’s ratio and compressibility of the given material by forming Hyperbolic fringes.

2. Ultrasonic Interferometer

Determination of velocity of ultrasonic sound in the given liquid and compressibility of the liquid.

3. Young’s Double Slit

Determination of .wave length of the light source or width of the double slit using Laser source for a) standard kit b) lab/custom made double slit

4. Mutual Inductance

Determination of mutual inductance between a pair of coils.Study of variation of mutual inductance for various distances and angles between the coils and determination of coefficient of coupling in each case.Graphical determination of break in coupling for distance and angle.

5. XRD - Crystallographic Parameters

- a) Braggs’ Law of Diffraction - derivation,
- b) Definition of Cry stallographic Parameters - d-spacing and lattice parameters.
- c) Crystal systems and d-spacing in different crystal systems.
- d) Content of ICDD file (formerly known as JCPDS)
- e) Determination of unit cell dimensions
- f) Crystal parameter for the given XRD spectrums

6. Optical Fibre Characteristics

- Determination of a) Numerical aperture and acceptance angle
- b) Attenuation in the fibre
 - c) Loss due to air gaps and coupling.


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SEMESTER II

Programme : M.Sc.	Subject : Physics
Course Code : 19PPHCL22	Course Title : Electronics PracticalsII
Category : Core Practical-4	Credits : 2 Hours: 4 hrs

Objective

To provide electronic circuit design and working principle.

Outcome:

Gain the knowledge about electronic circuit and its working.

(Any 5 Experiments)

1. Filters

Design and construction of II order Active Filters (Low pass, High Pass and band pass) using 1C 741 for a particular frequency
- Draw frequency response curve for each case.

2. UJT Characteristics and Relaxation Oscillator

Characteristics study of UJT - construction of a relaxation Oscillator. UsingUJT to produce the saw tooth wave. Frequency response of the output for various R and C values.

3. Phase Shift and Phase Shift Circuit

Design a Phase shifter circuit using Op-Amp - Measurement of the Phase shift of the input wave for various R and C combinations - Comparison of the experimental output with theoretical values.

4. Digital to Analog Conversion

Construction of Weighted Resistor and R-2R Ladder Network D/A converters using IC 741- Graphing input and output voltages - Resolution Measurement.

5. SCR Characteristics and power control

Characteristics study of SCR - Construction of a power controller device using SCR.

6. Code Converters

Construction of Code converters using ICs - Tabulate input and output for various decimal numbers

- BCD to Excess-3
- BCD to Gray
- Excess-3 to BCD
- Gray to Excess – 3

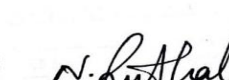
7. Analog Computation.

Solve the given 2 variable simultaneous equations by constructing the Analog computers
using Op-Amps. Sample Eqns.

- a) $X+2Y=4$; $2X+Y=5$
b) $3P+2Q=18$; $P+Q=7$


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SEMESTER III

Programme: M.Sc.	Subject: Physics
Course code: 19PPHC31	Course Title: Quantum Mechanics I
Category: Core 10	Credits: 5 Hours: 5 hrs

Objectives:

- 1. To get knowledge about wave functions and Schrodinger equations.
- 2. To understand matrix mechanics and Heisenberg uncertainty principle.
- 3. To solve microscopic problems using quantum mechanical ideas.

Unit	Detailed Syllabus	Outcomes	Hours
1	Origin of Quantum Mechanics Introduction – Construction of Schrodinger equation – Solution of time dependent equation – Physical interpretation of – Conditions on allowed wave functions - Box normalization – Conservation of probability – Expectation value – Ehrenfest’s theorem – Verification of Ehrenfest’s theorem – Linear harmonic oscillator – particle in an infinite square well potential – Particle in a magnetic field.	1. The students can understand the wave function and derive the Schrödinger equation and interpret the wave function and Eigen value equation. 2. The students can know the different types of potentials and derive the solutions of Schrödinger equation for the same concepts are improve their mathematical skill 3. The students can understand the concept of Ehrenfest’s theorem	12
2	Heisenberg Uncertainty Principle and Operators Classical uncertainty relation –Heisenberg uncertainty relation – Implication of uncertainty relation – Illustration of uncertainty relation – Gamma-Ray microscope – Doppler effect. Operators, Eigen values and Eigen functions: Self-adjoint and Hermitian operator – Discrete and continuous Eigen values.	1. The students can understand the concept of Heisenberg’s Uncertainty Principle. 2. Students can gain basic knowledge about different types of operators 3. Students can be familiar with Doppler effect	12
3	Exactly solvable systems Bound states – Classical probability distribution – linear harmonic oscillator – Particle in a box – Poschl-Teller potentials – Quantum pendulum – Time dependent harmonic oscillator – Rigid rotator.	1. Students can obtain knowledge from the quantum pendulum and time dependent harmonic oscillator 2. Students must learn the concept of classical probability distribution 3. To know about rigid rotator	12
4	Matrix Mechanics Linear vector space – Matrix representation of operators and wave functions – Unitary transformation – Application of matrix mechanics – Dirac’s Bra and Ket notations – Properties of bra and ket vectors – Hilbert space.	1. Students can obtain knowledge about unitary transformation 2. Students can understand the concept of matrix mechanics 3. Students can familiar with Hilbert space	12
5	Various Pictures and Density matrix Schrodinger picture – Heisenberg picture – Interaction picture – Density matrix for a single system – Density matrix of an ensemble – Time evolution of density operator – A spin ½ systems.	1. The Students can gather knowledge from the various pictures and density matrix. 2. The students can understand the concept of time evolution 3. The students can improve their mathematical skill by studying the density matrix	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Quantum Mechanics I: Fundamentals	S. Rajasekar and R. Velusamy	2014 (1)	(CRC Press, Taylor and Francis group- Boca Raton, London)

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Quantum Mechanics	L. Schiff	2017 (3)	Tata Mc Graw Hill, New Delhi
2	A Text Book of Quantum Mechanics	P. M. Mathews and K. Venkatesan	2010 (2)	Tata Mc Graw Hill, New Delhi
3	Quantum Mechanics	S. Devanarayanan	2014 (1)	Sci Tech, Chennai
4	Quantum Mechanics	G. Aruldas	2008 (2)	Prentice hall of India, New Delhi PHI Learning Pvt. Ltd.,


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SEMESTER III

Programme: M.Sc.	Subject : Physics
Course Code: 19PPHC32	Course Title : Electromagnetic Theory
Category: Core 11	Credits : 4 Hours: 5 hrs

Objectives:

- 1. To get knowledge about Maxwell’s equation.
- 2. To understand propagation of electromagnetic waves through various media including waveguides.
- 3. To enable the students to develop their skill in basic electromagnetic laws

Unit	DetailedSyllabus	Outcomes	Hours
1	Electrostatics Coulomb’s law – Gauss law – Poisson’s equation and Laplace’s equation – work done to move a point charge – energy of a point charge and continuous charge distribution – methods of images – electric field in dielectric materials – induced dipoles and polarizability – connection between polarizability and susceptibility – susceptibility, permittivity and dielectricconstantof linear dielectric	1. The students can gain knowledge on the concepts of electrostatics, polarizability and susceptibility 2. The students can understand electric and magnetic fields and apply the principles of Coulomb’s Law and Gauss’s law toelectric fields in various coordinatesystems. 3. To identify the electrostatic boundary value problems by application of Poisson’sand Laplace’s equations.	12
2	Magnetostatics Lorentz force law – Biot-savart’s law and Ampere’s law – magnetic vector potentialExpansion of the vector potential–Effects of a magnetic field on atomic orbits–magnetic energy– Ferromagnetism magnetic susceptibility and permeability in linear and non linear media.	1. The students can gain knowledge on the concepts of magneto statics and various laws of magnetostatics 2. Students can obtain knowledgemagnetic vector potential 3. The students to get the knowledge about parameters like permeability andsusceptibility used in dielectric physics	12
3	Electrodynamics Electromagnetic induction – Faraday’s law – Maxwell’s equationdifferentialandintegralform – Boundary conditions on field vectors D, E, B and H – Scalar and vector potentials – Gauge transformations–Lorentz and coulomb gauge– pointing vector and pointing theorem -stress tensor – Conservation of momentum	1. To understand the depth of static and time-varying electromagnetic field as governedby Maxwell’sEquations 2. To acquire knowledge on the concepts of Faraday’s law, induced emf andMaxwell’s equations. 3. To study about the gauge transformationsand stress tensor	12
4	Electromagnetic waves The wave equation for E and B – Monochromatic plane waves – energy and momentum in EM waves in linear media – Reflection and transmission at normal and Oblique incidence – EM waves in conductors wave guides – TE waves in rectangular wave guides – the coaxial transmission line.	1. The students understand the concept howto apply Maxwell’s equations to solutions of problems relating to transmission lines and uniform plane wavepropagation. 2. The students to know about the concepts of Electromagnetic waves and itspropagation 3. The students to get the knowledge of transmission lines and coaxial transmission lines	12
5	Electromagnetic radiation Retarded potential – Lenard – Wiechart potential – Electric dipole radiation – magnetic dipole radiation – power radiated by a point charge – amour formula – Abraham Lorentz formula for the radiation reaction – physical origin of radiation reaction.	1. Students to know about the retardedpotential and Wiechartpotential 2. The students to know about electricand magnetic dipoleradiation 3. The students to know about the origin of radiation	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Introduction to Electrodynamics	David J Griffiths.	2013 (4)	Prentice Hall of India

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Classical electrodynamics	J. D. Jackson	2007 (3)	Wiley Eastern Publication.
2	Electromagnetic fields and Waves	P.Lorrain and D.Corson.	1988 (3)	CBS Publishers and Distributors
3	Electrodynamics	B.P Laud	2015 (3)	New Age International Pvt.Ltd.


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SEMESTER III

Programme: M.Sc.	Subject : Physics
Course code: 19PPHC33	Course Title : Statistical Mechanics
Category: Core 12	Credits : 4 Hours: 5 hrs

Objectives:

- 1. To study the basic concepts involved in statistical mechanics, classical and quantum statistics.
- 2. To acquire basic understanding of applications of quantum statistics, phase transition in certain physical problems.
- 3. To know the theory of statistics and quantum ideas.
- 4. To study postulates of quantum mechanics, Maxwell-Boltzmann distribution law, theory and applications of quantum statistics.

Unit	Detailed Syllabus	Outcomes	Hours
1	Basic Concepts Phase space – phase – space diagram of an oscillator – Volume in phase space – Ensembles – Micro canonical ensembles – canonical ensemble – Grand canonical ensemble – Density of distribution in phase space – Liouville's theorem – postulate of equal a priori probability- statistical, mechanical and thermal equilibrium – connection between statistical and thermo dynamical quantities.	1. The students can learn the basic concepts of phase space 2. The students can understand the classification of ensembles. 3. The students can know the connection between the statistical and thermo dynamical quantities.	15
2	M-B Distribution law Microstates and microstates – Stirling's approximation – Thermodynamics probability– General statistical distribution law – Classical Maxwell – Boltzmann distribution law – Evaluation of constants in the Maxwell Boltzmann distribution law – Maxwell's law of distribution of velocities–principle of equi-partition of energy–Boltzmann entropy relation– probability of magnetic moment distribution of independent atoms.	1. The students can apply the Maxwell-Boltzmann distribution law, theory and applications of quantum statistics. 2. The students can learn the Maxwell's law of distribution of velocities 3. The students acquire knowledge of probability of magnetic moment.	15
3	Quantum statistics Bose-Einstein and Fermi-Dirac distributions–Thermodynamic quantities – Fluctuations in different ensembles – Bose and Fermi distributions in micro canonical ensemble - Maxwell- Boltzmann distribution law of microstates in a classical gas- Physical interpretation of the classical limit–Derivation of Boltzmann equation for change of states without and with collisions– Boltzmann equation for quantum statistics– Equilibrium distribution in Boltzmann equation	1. The students can learn distributions of Bose-Einstein and Fermi-Dirac. 2. The students can apply the micro canonical ensemble I Bose and Fermi distributions. 3. The students acquire knowledge of Mass less Fermi gas at any temperature, particles and Antiparticles	15
4	Bose Gas and Fermi Gas Non-interacting Bose gas and thermodynamic relations – Chemical potential of bosons – pressure and energy density of bosons – Blackbody radiations and Planck's distribution law– Number density of photons and Bose condensation - Thermodynamic relations for non- interacting Fermi gas – Fermi gas at zero temperature–Fermi energy and Fermi momentum– Pressure and energy density – Fermi gas at low temperature – Mass less Fermi gas at any temperature, Particles and antiparticles	1. The students can learn the chemical potential of bosons and pressure and energy density of bosons. 2. The students can understand the basic knowledge of the Fermi energy and Fermi momentum 3. The students can establish the particles and antiparticles.	15
5	Heat capacities, Ising model and Phase Transitions Heat capacities of hetero nuclear diatomic gas – Heat capacities of homo nuclear diatomic gas – Heat capacities of solids; Dulong and petit law,– Heat capacity of Bose gas–One- dimensional Ising model and its solution by variational method – Exact solution for one-dimensional Ising model -Phase diagrams for pure systems.	1. The students want to know the basic concepts of Heat capacities of hetero nuclear diatomic gas 2. The students want to know the Exact solution The students can learn the One- dimensional I sing model.	15

Text Book:

S. No	Title of the book	Author/s	Year (Edn)	Publisher/s
1	Statistical Mechanics	R K Pathria, P.D. Beale	2011 (3)	Academic Press

Reference Books:

S. No	Title of the book	Author/s	Year (Edn)	Publisher/s
1	Elementary statistical Mechanics	Kamal Singh & S.P. Singh	2000 (1)	S. Chand & Company, New Delhi
2	Elements of Statistical Mechanics	Dr.S.L.Gupta & Dr. V.Kumar	2008 (2)	Pragati Prakasan, Meerut
3	Fundamentals of Statistical and Thermal Physics	Reif F. McGraw	2009 (3)	Hill Kogakusha.
4	Statistical Physics	Huang K. John	2004 (2)	Wiley
5	Statistical Mechanics	Gupta & Kumar	2005 (1)	Pragati Prakashan, Meerut.

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PPH – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI-627011
SEMESTER III

Programme: M.Sc.	Subject: Physics
Course code: 19PPHC34	Course Title: Research Methodology
Category: Core 13	Credits: 4 Hours: 5 hrs

Objectives:

1. To understand the basic concepts of literature collection, activities involved in the research problem, method of writing the thesis.
2. To get knowledge about Origin and Latex for analyzing the sample.
3. To learn different methods of analyzing the presence of specific substance in the sample

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction to Research Objectives of Research – Importance of research – research methods and research methodology – Types of research – Basic research – applied research – Quantitative and Qualitative methods – Identification of research topic – Literature survey – Reference collection – Hypothesis.	1. The students can develop understanding on various kinds of research, objectives of doing research, research process, research designs and sampling. 2. The students can have basic knowledge on qualitative research techniques 3. The students can have adequate knowledge on measurement & scaling techniques as well as the quantitative data analysis	12
2	Research Activity Mode of research – Research design – joy in doing research – crucial stage of Ph.D., - actual investigation – doing good research – results and conclusion – preparing the oral report – presenting the oral report in scientific seminar Planning the assignment – Defining and limiting the problem – time schedule – preparing the working bibliography – taking notes – outline – first draft.	1. The students can determine the effectiveness of the activity 2. The students can keep them focused when developing your activity. 3. The students can provide your perspective or deliver some sort of experience for the work with.	12
3	Writing the thesis Planning the thesis – Writing the thesis / assignment - General format – Page and chapter format – Tables and figures – Referencing – Appendixes.	1. The student can emphasis on the scientific aspects of subject matter. 2. The student can integrate knowledge critically and systematically 3. The student can clearly present and discuss the conclusions as well as the knowledge and arguments	12
4	Plotting software: Origin Introduction - Importing your data - Designating Worksheet Columns as Error Bars - Plotting Data - Customizing the Data Plot - Customizing the Graph Axes - Adding Text to the Graph - Exploring Data: Transforming Column Values - Sorting Worksheet Data - Plotting a Range of the Worksheet Data	1. To learn the graphs plotting and analysis results by automatic update on data 2. To create templates for repetitive tasks 3. To perform combined operations from the user without any programming.	12
5	Typesetting Software : Latex Introduction to LaTeX – TeX and LaTeX – A typical LaTeX input file – Characters and control sequences - Producing Simple Documents using LaTeX– LaTeX input file–producing ordinary text using LaTeX– Producing Mathematical Formulae using LaTeX– Mathematics mode	1. The students can summarize design principles, concepts, styles and terminologies 2. The students can demonstrate skill in tools and techniques of graphic design 3. The students can apply design principles and theories to design problems.	12

Text Book:

S.No	Title of the book	Author/s	Year (Edn)	Publication/link
1	Research methodology	Dr. S. Rajasekar, Dr. P. Philominathan, Dr. V. Chinnathambi	--	https://arxiv.org/pdf/physics/0601009.pdf

Reference Books :

1	Thesis and Assignment writing	Janathan Anderson, Berry H. Durston, Millicent Poole	1970 (4)	Wiley Eastern University Edition, Wiley Eastern Ltd.
2	Research methodology Methods and techniques	C.R.Kothari	2005 (2)	New Age International Publishers, New Delhi.
3	A Guide to LaTeX – Document preparation for beginners and advanced users	Helmut Kopka and Patrick W. Daly	2003 (4)	Addison Wesley Publishing company.
4	http://www.physics.rutgers.edu/~eandrei/389/Origin6_Tutorial.pdf http://www.maths.tcd.ie/~dwilkins/LaTeXPrimer/			

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PPH – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI-627011
SEMESTER III

Programme: M.Sc.	Subject: Physics
Course code: 19PPHPWV	Course Title: Project
Category: Core 14	Credits: 6 Hours: 6 hrs

MAJOR PROJECT

Objectives:

- To have the knowledge of and ability to use various problem solving strategies
- To have the ability to justify and explain specific approaches to solving problems
- To have the ability to synthesize knowledge from different areas of physics
- To learn the about application of knowledge to independent research projects.
- To develop a solid understanding of physics, both conceptual understanding and the ability to solve problems in the following areas.
- To develop research skills which might include advanced laboratory techniques, numerical techniques, computer algebra, computer interfacing.
- To develop the skill to plan, execute and report the results of an extended experimental or theoretical Physics based project in a research environment.

Outcomes:

- The students can apply theoretical knowledge of principles and concepts of Physics to practical problems use mathematical techniques and interpret mathematical models of physical behavior.
- The students can demonstrate the ability to plan, undertake, and report on a programme of original work; including the planning and execution of experiments, the analysis and interpretation of experimental results.
- The students can develop communication skills, both written and oral, for specialized and non-specialized audiences.

PROJECT GUIDELINES

(For Certificate, Diploma, Advanced Diploma, UG, PG, and MPhil., programmes)

1. Duration of the project work shall be for a period of one semester
2. Project work shall be carried out under the supervision of a faculty member of the department concerned or from allied department, if the work is of interdisciplinary in nature or with internal or external expert beyond the department as co-supervisor.
3. The supervisor allocation shall be made by lot by the end of 4 semester in UG, by the end of 2nd semester in PG (April 1st week) and for MPhil., 15 days after joining the programme. The allocation details may be sent to Autonomous cell by 10th April for UG & PG and for MPhil., 30 days after joining the programme.
- c. After allocation, the respective supervisors have to conduct orientation/counsel meeting with the assigned candidates about the project with P3 agenda (Participation, Presentation, and Publication) towards career prosperity. Subject Knowledge towards Pure and Applied part may be highlighted for doing the project.
- d. The HoD shall review the coverage of different fields of the subject amongst the candidates and to see that the students should not focus on particular fields alone.
4. The candidates have to study/refer journals/previous works/focus on the proposed topic in the summer vacation and 5-10 titles of proposed project on respective subject (discipline) or on allied subject (interdisciplinary) with economic/scientific/social/local/state/national/global issues may be submitted to the guide by May end.
5. The supervisor shall guide the candidates on their choice after having reviewed proposed topics, the mindset and work culture, provided the work is of innovative in nature, affordable and with future prospective. If not satisfied with the proposed topic/due to lack of infrastructure/beyond scope and practicality, supervisor herself shall suggest the field/topic for work. Hard copy of proposed title with objectives in the prescribed format to be submitted to CoE’s Office through Dean, Autonomous in the last week of June
6. Parent’s undertaking/willingness may be obtained in writing by inviting the parents for department level meeting after explaining its importance, guidelines, safety precautions related to outdoor project commitments etc.
7. Project period – June to September. Last date for the submission of dissertation is 15th October


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8. Project Progress Review has to be conducted in 5th July, 5th August and 5th September. Report Card for individual candidates shall be maintained at the department for audit at any time. (Proforma)
9. If a candidate fails to submit the dissertation on or before the specified date, she may submit the same on or before 15th November by paying prescribed late fee.
10. The evaluation of dissertation will be as per the University/Autonomous norms

The assessment of Project component during the Course and in the End-semester examinations shall be carried out as follows:

CIA (Max: 25 Marks)				End – Semester Examination (Max.: 75 marks)				
Marks for Reviews (Average of the best two of the three compulsory Reviews) (Max.: 25 marks)				Marks for Thesis Evaluation (Max.: 25 marks)		Marks for Viva-Voce Exam. (wit the Deptl. Faculty Member / Course students) (Max.: 50 marks)		Total (Max.)
ReviewI (Max) (	ReviewI I (Max) (	ReviewIII (Max) (	Averageof thebesttwo (Max) (	Project Supervisor (Max.)	External (from outside the Institution) (Max) (	Project Supervisor (Max) (	External (from outside the Institution) (Max) (	
25	25	25	25*	12.5	12.5	25	25	75*

* The marks secured may be rounded off to its nearest integer.

11. PG and M.Phil., students should carry out the project individually. UG students may undertake group projects with a maximum of three students in a group. The group may be of interdisciplinary nature combining students from two to three departments with the concern of the respective guides. An undertaking, in this regard, has to be submitted by the group of students with the endorsement by the guides.
12. LATEX procedure shall be followed for Mathematics projects.
13. **GUIDELINES ON THESIS (WITH STATIONERY ECONOMY MEASURES):**

i. Number of Pages (inclusive of prefix and suffix):

i) V semester Project Maximum 40 pages;

ii) VI semester Project Maximum 60 pages,

iii) PG Projects Maximum 80 pages;

Iv) MPhil., maximum 100 pages.

j. Size of the paper A4; Font Times New Roman; Title 14 Capitals/Bold; Subtitle 12 Capitals/Bold; Running matter 11.

k. Left and Right margin 1 and half inch; Top and bottom margin 1 inch

l. Line space 1.5

m. Table and Figures shall be in separate sheets (without page number). More than 1 table or figure or plate is permitted in a page. Table number followed by the title should be on the top of the respective table. Similarly Figure Number followed by title be at the bottom of the respective figures. Regarding Plates ie photographs only original photographs (printed in photo sheet) of the work carried out and scientifically relevant to be included. The size the photographs should be reduced and neatly arranged in a page with appropriate title or sub title. Plate Number followed by the title be at the bottom of the photographs concerned.

n. Number of copies:

v. Copy 1 – Student copy – Neatly typed on one side with good binding to be submitted (to be returned immediately after examination)

vi. Copy 2 – Department copy - Neatly typed on both sides of the paper with stapler pin binding – Copies of all students have to be bound in volumes of 1 or 2 and kept in the department for reference.

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- vii. Copy 3 - Autonomous Office copy – Projects of all students as one CD/DVD & Hard copy of the abstract/extended abstract as OHP bound booklet.
- viii. For PG & MPhil., (Candidate copy - Hard bound (one side print), Autonomy (CD), Guide copy (CD), Department (CD containing all projects of the class), Central library (CD containing all projects of the class) & Hard copy of the abstract/extended abstract as OHP bound booklet.
- o. Uniform structure/composition of the thesis:

Uniformity in Prefix contents for all disciplines			
1	Wrapper page		
2	Wrapper page copy		
3	Contents		
4	Acknowledgement by the candidate		
5	Declaration by the Candidate with candidate’s Photo attested by HoD		
6	Certificate by the supervisor, countersigned by HoD		
7	Evaluation Examiners Page		
Running matter structure Arts, Languages, Humanities		Running matter structure Science	
1	Abstract/Extended Abstract	1	Abstract/Extended Abstract
2	Introduction	2	Introduction
3	Review of Literature	3	Review of Literature
4	Profile of The Study	4	Materials
5	Methodology & Data collection	5	Methodology
6	Analysis and Interpretation	6	Results
7	Findings, Suggestions and Conclusion	7	Discussion
8	Bibliography(Uniform format)	8	Bibliography (Uniform format)
Uniformity in Suffix – contents			
Publications – Xerox of Abstracts/extended abstracts/Full papers			

- p.
- q. Bibliography: Arts & Science.

vi. Research article:

Latha, P., Dhanabackialakshmi, R., Kumar, P.S. and Karuthapandian, S. 2016. Synergistic effects of trouble free and 100% recoverable CeO₂/Nylon nanocomposite thin film for the photocatalytic degradation of organic contaminants. Separation and Purification Technology, 168(2): 124–133

vii. Conference / Seminar / Symposium papers

Peng, J., Zhang, X., Lei, Z., Zhang, B., Zhang, W. and Li,Q. 2009. Comparison of several cloud computing platforms. In: Proceedings of Second International Symposium on Information Science and Engineering, 23 – 27

viii. Books

Versteeg, H.K. and Malalasekera, W. 2007.An Introduction to Computational Fluid Dynamics. II Edn. Pearson Education Ltd., New York, pp. 517

ix. Book Chapters

Wade, S.E. 1981. Statistical designs for survey research. In: Stempel, G.H. and Westley, B.H. (Eds.). Research methods in mass communication.Printice Hall India Learning India Ltd., New Delhi, pp. 167

x. Web reference

National Institute of Mental Health.2018, July.Anxiety disorders. U.S. Department of Health and Human Services, National Institutes of Health. <https://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>

(Author to be included first, date to be included before month, if available)


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PPH – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI-627011 SEMESTER –III

Programme: M.Sc.	Subject: Physics
Course code:19PPHCL31	Course Title: Advanced Physics Practicals III
Category: Core Practical 5	Credits: 2 Hours: 4 hrs

Objectives:

- 1. To provide hands on experience in understanding the advanced physics experiments Gouy’s method, elliptical fringes, Hall probe into Gauss meter, and Phototransistor characteristics.
- 2. To study the basic skills and knowledge about the experiments.
- 3. To study Experiments in magnetism, electricity, and the theory behind the experiments.

Any 5 Experiments only

S. No	Name of Experiment	Outcomes
1	Gouy's Method Determination of Magnetic Susceptibility (Volume and Mass) of the given sample. (use a specimen in the form of a long rod or tube filled with powder or liquid)	Students can get knowledge about magnetic experiments.
2	Elliptical Fringes Determination of Young’s modulus, Bulk modulus, Rigidity modulus, Poisson’s ratio and compressibility of the given material by forming Elliptical fringes.	The students can obtain the knowledge about interference by forming Elliptical Fringes.
3	Equipotential lines a) Formation of equipotential lines for a)parallel plates b) circular plates c) plates of irregular shape b)) Determination of Electric field between the equipotential lines. c) Mapping of Electric field vector between the plates.	The students can gain knowledge about equipotential lines using parallel, circular and plates of irregular shape.
4	Temperature co-efficient of a forward biased diode Measure the resistance of a forward biased diode at three different temperatures and hence find the temperature co-efficient. Also plot variation of I with respect to T.	The students can gain ideas about temperature coefficient of a forward biased diode.
5	Phototransistor Characteristics Characteristic Study of Phototransistor using a) Light sources of different wave length b) Light sources of different intensities Plots for i. Spectral response ii. Sensitivity iii. Linearity	The students can get clear concept about phototransistor characteristics using different wavelength source.
6	Calibration of Hall Probe into Gauss meter a) Calibration of Hall probe into Gauss meter using a Search coil and b) Determination of calibration curve for a two axis Hall probe in radial mode.	The students can gain brief ideas about Hall effect and how to find Hall coefficients.

Text Book:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	A Text Book of Practical Physics	Indu Prakash & Ramakrishna	2011	Kitab Mahal Agencies, New Delhi


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SEMESTER IV

Programme: M.Sc.	Subject: Physics		
Course code: 19PPHC41	Course Title: Quantum MechanicsII		
Category: Core-15	Credits: 5	Hours: 6 hrs	

Objectives:

- 1. To provide the knowledge on the theory of angular momentum.
- 2. To study various approximation methods, and theory of scattering.
- 3. To know the basic concepts of relativistic quantum theory.

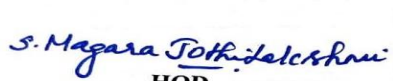
Unit	Detailed Syllabus	Outcomes	Hours
1	Theory of angular momentum Orbital angular momentum – Eigen pairs of L^2 and L_z – Properties of components of L^2 and L_z – Matrix representation of L^2 , L_z and $L_{\pm}$ - spin state of an electron – spin orbit coupling – Addition of angular momentum.	1. The students can obtain knowledge about matrix representation of L^2 , L_z and L . 2. The students get knowledge about angular momentum. 3. The students can gain knowledge about L^2 and L_z	14
2	Approximation methods-I Time Independent Perturbation Theory: Introduction- Theory for non- degenerate case - Application to non- degenerate levels- Theory for degenerate levels- First order Stark effect in Hydrogen atom- Zeeman effect.	1. To obtain knowledge about time independent perturbation theory 2. To get basic ideas about Zeeman effect 3. To get ideas about degenerate and non degenerate case.	14
3	Approximation methods II Time Dependent Perturbation theory: Introduction- Transition probability- constant perturbation-Harmonic perturbation-adiabatic perturbation- sudden approximation -Semi-classical theory of radiation- calculation of Einstein coefficients.	1. To gain knowledge about time dependent perturbation theory 2. The students know about different types of perturbation 3. The students know about semi – classical theory of radiation	14
4	Scattering theory Classical scattering cross section – Centre of mass and laboratory co- ordinate systems – Scattering amplitude – Green’s function approach – Born approximation – Partial wave analysis– Scattering form a square well system.	1. To obtain knowledge about partial wave analysis 2. The students know about scattering from a square well system 3. The students can easily calculate scattering amplitude and scattering cross section.	14
5	Relativistic quantum theory Klein – Gordon equation – Dirac equation for a free particle – Spin of a Dirac particle – Particle in a potential – Relativistic particle in a box – Relativistic hydrogen atom – Electron in a field – Spin orbit energy.	1. To obtain knowledge about Klein- Gordon equation 2. The students gain knowledge about partial wave knowledge 3. Students gain basic knowledge about relativistic hydrogen atom	14

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Quantum Mechanics	L. Schiff	2017 (4)	Tata McGraw Hill, New Delhi

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	A Text Book of Quantum Mechanics	P. M. Mathews and K. Venkatesan	1987 (5)	Tata McGraw Hill, New Delhi
2	Quantum Mechanics	S. Devanarayanan	2005 (2)	Sci. Tech. Publications Pvt Ltd, Chennai
3	Quantum Mechanics	G. Aruldas	2003 (2)	Prentice Hall of India, New Delhi


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SEMESTER IV

Programme: M.Sc.	Subject: Physics		
Course code: 19PPHC42	Course Title: Spectroscopic Techniques		
Category: Core 16	Credits: 4	Hours: 6 hrs	

Objectives:

- 1. To give detailed knowledge about various types of spectroscopy.
- 2. To determine the structure of different chemical compounds by studying these types.
- 3. To know basic ideas about polyatomic molecules

Unit	Detailed Syllabus	Outcomes	Hours
1	Microwave spectroscopy Classification of molecules based on moment of inertia – rotational spectra of rigid and non-rigid diatomic molecules – Isotopic effect – linear polyatomic molecule - symmetric top molecule – chemical analysis –microwave spectrometer	1. The students can learn about isotopeeffect 2. The students can determine thestructure of different chemicalcompounds 3. The students enable to learnmicrowave spectroscopy	14
2	Infrared spectroscopy Vibrating diatomic and poly-21atomic molecules – Simple harmonic oscillator – an harmonicity – Hydrogen bonding – Fermi resonance – rotation vibration spectra of polyatomic molecule – information from IR spectra – IR spectrometer – FTIR.	1. The students can familiarize the basic concept of IRspectroscopy 2. The students can gain basicknowledge about simple harmonicoscillator 3. The Students can learn theFTIR	14
3	Raman spectroscopy Theory of Raman scattering – rotation vibration Raman spectra – mutual exclusion principle – Raman spectrometer – polarization of Raman scattered light – structure determination using Raman spectrum –phase transition – resonance Raman scattering.	1. The students acquire the knowledge of Ramanspectroscopy 2. The students can gain the structureof Ramanspectrum 3. The students able to learn aboutphase Transition	14
4	Resonance spectroscopy Magnetic properties of nuclei – resonance condition – relaxation time – Chemical shift– application to molecular structure – Bloch equation – NMR instrumentation – NMR imaging – ESR theory and hyperfine structure ESR spectra of hydrogen atom and anisotropic systems – crystal defects and biological studies – ESR spectrometer.	1.The students get knowledge about a general introduction to ESR spectrometer 2.The students can gain the knowledge about crystal defects 3.The students are in order to learn the properties of nuclei, and their resonance condition	14
5	Surface spectroscopy Electron Energy Loss Spectroscopy EELS – Reflection – absorption IR spectroscopy RAIRS – Surface Enhanced Raman Scattering SERS – Inelastic helium scattering- X-Ray Photoelectron Spectroscopy XEPS.	1. The students can understand X-Ray PhotoelectronSpectroscopy 2. The student can gain more information aboutreflection 3. The can get a general introductionabout electron energy loss spectroscopy	14

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Fundamentals of Molecular Spectroscopy	N.Banwell and E.M.Mc Cash	2017 (4)	Tata McGraw Hill.
2	Molecular Structure and Spectroscopy	G.Aruldas	2008 (2)	Prentice Hall India

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Spectroscopy	B.P.Strughan and S.Walker	1976 (1)	John Wiley
2	IR and Raman Spectroscopy Principle and Spectral Interpretation	Peter J.Larkin	2011(1) 2017(2)	Elsevier
3	Introduction to Molecular Spectroscopy	Gordon M. Barrow	1962 (1)	McGraw-Hill


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SEMESTER IV

Programme: M.Sc.	Subject: Physics
Course code: 19PPHC43	Course Title: Nuclear and Particle Physics
Category: Core 17	Credits: 4 Hours: 5 hrs

Objectives:

- 1. To get knowledge about the elementary particles and nuclear structure.
- 2. To study about various nuclear reactions.
- 3. To know about elementary particles

Unit	Detailed Syllabus	Outcomes	Hours
1	Nuclear forces Ground and excited states of deuteron – magnetic dipole and electric quadruple moments of deuteron – n-p scattering at low energies – shape independent effective range theory of np scattering – pp scattering at low energies – exchange forces – meson theory of nuclear force.	1. The students can expand their knowledge of nuclear properties and Nuclear forces and provide a foundation for further advanced studies. 2. The students can understand the various properties of characteristics of nuclear forces. 3. The students can explain the Ground and excited states of deuteron.	12
2	Nuclear decays Gamow’s theory of alpha decay – linear and Continuous spectrum of β decay- Fermi theory of beta decay – Fermi and Gamow-Teller selection rules – parity violation – Gamma decay – multi pole transitions in nuclei – selection rules – internal conversion – nuclear isomerism.	1. The students can understand the Gamow’s theory of alpha decay 2. The students can understand multiple transitions in nuclei 3. The students can explain Fermi and Gamow-Teller selection rules.	12
3	Nuclear models Liquid drop model – Weizsackers mass formula – nuclear stability – Bohr Wheeler theory of nuclear fission - magic numbers - evidence for magic numbers – shell model – spin orbit coupling – angular momentum and parities of nuclear ground states – magnetic moments - Schmidt line – collective model.	1. The students can understand the Bohr Wheeler theory of nuclear fission. 2. The student should learn the classification of model 3. The student want to know the coupling of spin orbit	12
4	Nuclear reactions Types of nuclear reactions – Q-equation – solution of the equation – compound nuclear theory – reciprocity theorem – nuclear cross section – resonance scattering– Breit –Wigner dispersion formula – nuclear chain reaction – four factor formula.	1. To expand their knowledge of various phenomena of nuclear reactions and cross sections, type of reactions and its significance 2. To study statistical theory of nuclear Reactions and Breit-Wigner Dispersion Formula. 3. To study the four factor formula.	12
5	Elementary particles Classification of elementary particles- fundamental interactions conservations laws – CPT theorem - SU(3) multiplet – meson octet – baryon octet and baryon de couplet – Gell-Mann-Okubo mass formula - Quark theory.	1. The students want to explain the classification and properties of elementary particles. 2. The students can understand the concept of CPT theorem 3. The students can establish the Quark theory	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Nuclear Physics	D. C. Tayal,	2011 (5)	Himalaya Publications

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Elements of Nuclear Physics	M. C. Pandia and R. P. S. Yadav Kedarnath.	1995 (7)	Sarika offset Press, Meerut
2	Concepts of Nuclear Physics	Bernard L Cohen	2017 (1)	Tata McGraw-Hill Education
3	Nuclear Physics an Introduction	S. B. Patel	2014 (2)	Wiley Eastern Ltd
4	Nuclear Physics	R. R. Roy and B. P. Nigam	2005 (2)	New Age International Ltd


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PPH-BOS-SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS) TIRUNELVELI-627011
SEMESTER III

Programme: M.Sc.	Subject: Physics
Course code: 19PPHE41	Course Title: Nano Physics
Category: Core Elective 1	Credits: 4 Hours: 5 hrs

Objectives:

- 1. To understand about the methods of synthesis
- 2. To know about the characterization techniques
- 3. To gain basic ideas about nanostructures

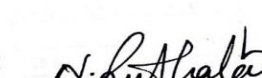
Unit	Detailed Syllabus	Outcomes	Hours
1	Synthesis methods Sol-Gel and Precipitation technologies - Ball milling - RF plasma - Hydrothermal - Chemical Vapor Condensation process – Electrodeposition - Laser synthesis - Gas phase condensation – Biological synthesis	Students can 1. Know about different types of synthesis processes 2. Gain basic ideas about lasersynthesis 3. Get knowledge about biological synthesis	12
2	Nanostructures Types of nanostructures – Heterostructure- Preparation of quantum nanostructures: Preparation - Size and dimensionality effects – Excitations - Single- electron tunneling - Applications. Nanomachines and nano devices: Micoelectrochemical systems – Nano electrochemical systems	Students can 1. Know about different typesof nanostructures 2. Learn the basic concept of nano machines and nanodevices 3. Get basic knowledge about nano electro chemicalsystems	12
3	Properties Properties of individual nanoparticles: Metal nanoclusters – Semiconducting nanoparticles - Rare gas and molecular clusters. Bulk nanostructured materials: Solid disordered nanostructure – Nanostructuredcrystals.	Students can 1. Gain basic ideas about properties of nanoparticles 2. Know about rare gases andmolecular clusters 3. Study the topic nanostructuredcrystals	12
4	Characterization Techniques-I Structural: Powder XRD & particle size determination, Raman-Neutron diffraction; Spectroscopic: X-ray Photoelectron (XPS), Photoluminescence, Impedance and Energy Dispersive X-ray (EDAX) spectroscopy.	Students can 1. Know about structuraldetermination 2. Study the concept of photo luminescence 3. Gain ideas about Raman- Neutron diffraction	12
5	Characterization Techniques-II Thermal: Differential Thermal Analysis (DTA), Differential Scanning Calorimetry (DSC); Microscopic: Atomic Force Microscopy (AFM); Electrical and Magnetic: Four - probe method, Vibrating sample Magnetometer.	Students can 1. Study the concept of differential thermalanalysis 2. Know about vibrating sample magnetometer 3. Learn four – probemethod	12

Reference Books:

- 1. Evgenij Barsoukov and J. Ross Macdonald: Impedance Spectroscopy: Theory, Experiment and Applications, (John Wiley & Sons, Inc., Hoboken, New Jersey, second edition),2005.
- 2. G. Cao: Nanostructures & Nanomaterials: Synthesis, Properties & Applications, (Imperial College Press),2004.
- 3. Koch CC, Nanostructured Materials processing, properties and potential applications, Williams AndrewPublishing, Noyes,2002
- 4. Pavia, Lampman, Kriz and Vyvyan, Spectroscopy, Cengage Learning India Pvt Ltd.,2011.
- 5. Willard, Merritt, Dean and Settle, Instrumental Methods of Analysis. CBS Publishers & Distributors, Delhi,1986.
- 6. J.RossMcdonald,ImpedanceSpectroscopyEmphasizingsolidmaterialsandsystems,JohnWiley&sons,New York,1996.
- 7. T. Pradeep, NANO: The Essentials, Tata Mc Graw-Hill Pvt. Ltd., New Delhi,2007.
- 8. Charles P. Poole Jr & Frank J. Owens, Introduction to Nanotechnology, John Wiley & Sons (Asia) Pvt. Ltd., New Delhi,2006.
- 9. Jackie Y.Ying, Nanostructured Materials, Academic Press, USA,2001.


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PPH – BOS - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI-627011
SEMESTER IV

Programme: M.Sc.	Subject: Physics
Course code: 19PPHE42	Course Title: Renewable Energy Sources
Category : Core Elective 1	Credits: 4 Hours: 5 hrs

Objectives:

- 1. To understand a brief knowledge about the types of various non-conventional energy sources.
- 2. To study the societal application of these energy sources.
- 3. To know about geothermal and tidal energy

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction Primary and secondary energy – Commercial and non-commercial energy – renewable and non – renewable resources and their importance-world energy use – reserves of energy resources–energy cycle of earth– Indian energy scenario–Long term energy scenario for India – environmental aspects of	1. The students can have profound knowledge in a special field such as solar energy, storage, smartgrid. 2. The students can get an idea about basic principle of renewable and non renewable resources and their importance 3. learn the present energy scenario and the need for energy conservation	12
2	Solar energy Introduction – extra terrestrial solar radiation – radiation at ground level - collectors – Solar cells – application of solar energy – Biomass energy – biomass conversion – bio gas production – ethanol production – pyrolysis and gasification – direct combustion – application.	1. The students can understand the ideas about Solar energy, Physical principle of conversion of solar energy into heat energy, 2. The students can discuss the positive and negative aspects of the environment. 3.The students can understand the concept of Biomass energy resources	12
3	Geothermal and Tidal Energy Introduction – basic theory – types of turbines – applications geothermal energy – Introduction – geothermal resources electricity generation – Tidal energy – Introduction – origin of tides – Power generation scheme	1. The students can obtain knowledge about geothermal resources and their types 2. The students to get an idea about power generationscheme 3. To know about tidal energy sources	12
4	Other Renewable Energy Sources Hydropower – introduction – basic concept – site selection – types of turbine – small scale hydropower – magneto hydrodynamics (MHD), Thermoelectric and Thermionic energy resources– basic principles – power generation – nuclear energy – basic principle – power generation (basic idea only).	1. The students gain knowledge in a field of renewable energy systems achieved through the work on a masterthesis. 2. The students want to know the need of renewable energy resources, historical and latest developments 3. The students have a good understanding of national and international regulations and framework conditions for renewable energy systems.	12
5	Chemical energy sources Introduction – fuel cells – design and principle – classification – types – advantages and disadvantages applications – Batteries – Introduction – Theory – Different types of batteries arrangements – classification of batteries – advantages of batteries for bulk storage.	1.The students can study classification, advantages and disadvantages of fuel cells 2.The students acquire the knowledge of fuel cells and batteries 3.The students can obtain the knowledge from the design and the principle of fuel cells.	12

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Non-Conventional Energy Sources	G.D.Rai	1984 (6)	Khanna Publishers, New Delhi,

Reference Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Solar Energies of thermal process	A. Duffie and W.A. Beckmann	2006 (3)	Wiley
2	Principle of Solar Engineering	F.Kreith and J.F.Kreider,	2000 (3)	Mc Graw-Hill, CRC Press
3	Alternate Energy Sources	T.N. Veziroglu,	1981	Mc Graw – Hill
4	Solar energy – principle of thermal collection and storage	S P Sukhatme and j K Nayak,	2017 (4)	Tata Mc Graw Hill


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SEMESTER III

Programme: M.Sc.	Subject: Physics		
Course code: 19PPHE43	Course Title: Material Science		
Category: Core Elective 1	Credits: 4	Hours: 5 hrs	

Objectives:

- 1. To learn about mechanical properties of materials
- 2. To know the concept of phase diagram
- 3. To get knowledge about crystals, ceramics, polymers and plastics

Unit	Detailed Syllabus	Outcomes	Hours
1	Phase Diagram Solid solutions and intermediate phase-Equilibrium phase diagrams, Cu-Ni, Pb-Sn, Al-Cu system phase diagrams-Free energy and equilibrium phase diagrams- Nucleation and growth-Martensitic transformation- strengthening mechanisms-Iron-Carbon system-Alloy steels-Aluminum-Copper system-Copper-Zinc system-Corrosion	1. To understand about nucleation and growth 2. To know about Iron carbon system 3. To get knowledge about phase diagrams of copper, nickel etc	12
2	Mechanical Properties Factors affecting mechanical properties - mechanical tests - tensile, hardness, impact, creep and fatigue - Plastic deformation by slip - shear strength - work hardening and recovery - fracture - Griffith's theory - slip and twinning - creep resistant materials - diffusion – Fick's law.	1. To acquire knowledge about mechanical properties of a substance 2. To get clear idea about Griffith's theory 3. To identify creep resistant materials and their diffusion	12
3	Ceramics Structure of ceramics-Production of ceramics: Raw materials, Forming and Post-forming processes- Production of glass: Melting of glass, Glass forming and annealing- Mechanical properties of ceramics-Wear and erosion resistance-Thermal shock-Silica-Alumina system-Commercial systems: Zirconia, Sialones, Cement and Concrete	1. To know about structure of ceramics 2. To get detail knowledge about production and forming of glass and ceramics 3. To acquire knowledge about mechanical properties of ceramics	12
4	Polymers and Plastic Molecular structure: Monomers & Polymers, Synthesis, Molecular weight measurement, Branching & Tracity, Copolymets and blend-Mechanics of polymer chain: Freely joining chains, Entanglements, Rubber elasticity- Thermoplastic melts: Viscosity, Shear thinning, Processing, Extrusion-Amorphous polymers: Solidification, glass transition, Various models- Crystalline polymers: Stress-Strain behaviour-Chemical properties.	1. To know about the molecular structure of monomers and polymers 2. Students can understand the concept of rubber elasticity 3. To get familiar knowledge about crystalline polymers	12
5	Crystals Crystals growth from solution-Melt growth techniques: Bridgman method, Czochralski crystal pulling technique, Crystal growth from Vapour phase-Crystal Imperfections- Point defects: Vacancies, interstitials, electronic defects- Lline defects: Edge dislocation, Screw dislocation-Surface defects: Grain boundaries, Tilt boundaries, Twin boundaries, Stacking faults,Ferromagnetic domain walls-Volume defects: Cracks, Voids.	1. Students can gain basic knowledge of Bridgman method 2. To gain ideas about point defects 3. To get clear concept about surface defects	12

Text Book

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Material Science	M.Arumugam	2005 (2)(Fifth Reprint)	Anuradha Agencies, Publishers

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Materials Science for Engineers	J.C.Anderson, K.D.Leaver, P.Leevers and R.D.Rowlings	2010 (1)	Nelson Thomas Ltd
2	Materials Science for Engineering	R.Balasubramaniam	2010	Wiley India (P) Ltd
3	Materials Science for Engineering	V. Raghavan	2015 (6)	Prentice Hall of India Pvt Ltd
4	Superfluidity and superconductivity	D.R.Tilley and J.Tilley	1990 (3)	Hilger


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SEMESTER IV

Programme: M.Sc.	Subject: Physics
Course code: 19PPHCL41	Course Title: Advance Physics PracticalsIV
Category: Core Practical 6	Credits: 2 Hours: 4 hrs

Objectives:

- 1. To provide hands on experience in understanding the advanced physics experiments Hall effect, Hysteresis, Ultrasonic diffraction etc.,
- 2. To understand basic skills and knowledge about the experiments.
- 3. To study the theory behind the experiments.

Any FIVE Experiments only:

S. No	Experiments	Outcomes
1	Temperature co-efficient and Band Gap: 1) Determination of Temperature co-efficient and band gap of a given Semiconductor Thermistor using Carey-Foster Bridge.	To determine the specific resistance of unknown coil by Carey Foster Bridge
2	Hall Effect: 1) Definition of Hall effect and its application 2) Determination of a. Hall voltage b. Hall coefficient c. Carrier density d. Mobility of charge carriers e. Resistivity	To understand the properties of metals on the basis of the free electron theory with Hall effect To calculate electrical properties of material
3	Four Probe: a) Four Probe principle b) Measurement of Resistivity and Energy band gap of a given semiconductor material	To measure the Resistivity for a semiconductor wafer using Four probe method.
4	Ultrasonic Diffraction: 1) Formation of acoustic grating in a given liquid using a crystal to determine the velocity of ultrasonic wave in the liquid and compressibility of the liquid. 2. Repeat for another liquid and hence find the ratio of compressibility and velocity.	To determine the velocity of ultrasonic waves and to understand the concept of compressibility using ultrasonic interferometer
5	LCR circuit: 1) Determination of dielectric constant of a liquid using LCR circuit 2) Determination of dielectric constant of a given crystal using LCR meter.	To measure the effects of series resonance To validate the formula for the resonant frequency To identify resonant for series circuits
6	Hysteresis: 1) Formation and tracing of magnetic hysteresis loop for the given specimen to determine a) Coercivity b) Retentivity and c) Energy loss per unit volume per cycle of the Specimen	To capture the coercivity and the amplitude of magnetic field strength of hysteresis loops with high accuracy
7	Two Probe: 1) Determination of resistivity of the given samples	To measure of resistivity of very high resistivity samples like sheets/films of polymers

Text Book:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Experiments with Modern Physics	A C Melissinos, J Napolitano	2003 (2)	Academic Press


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SEMESTER IV

Programme : M.Sc.	Subject : Physics
Course Code : 19PPCHL42	Course Title : Microprocessor Practicals and C++ Programming
Category : Core Practical 7	Credits : 2 Hours: 4 hrs

Objectives:

- 1. To Provide hands on experience on microprocessor experiments.
- 2. To learn the knowledge of arithmetic operation, data manipulation, interfacing experiments, ADC & DAC conversion etc...
- 3. To provide knowledge about the C++ programming.
- 4. To solve many tedious physical problems numerically

Microprocessor Experiments & C++ Programming (from both each 3)

S. No	Experiments/Programs	Outcomes
1	Arithmetic Operations (1) Addition of two 8 bit and two 16 bitnumbers (2) Subtraction of two 8 bit and 16 bitnumbers (3) Multiplication of two 8 bit numbers – 16 bitresult. (4) Division of 16 bit by an 8 bitnumber	The students can study 8085 microprocessor based ALP using arithmetic, logical and shift operations.
2	Data Manipulation (1) Arrange the given data items in Ascending or Descendingorder (2) Finding the Minimum and Maximum value in the givendataset.	The students can know how to arrange given data in ascending and descending order using microprocessor program
3	System Call and Rolling character (1) Calculation of time delay for a giveninterval. (2) Display a Character on the 7 segment display of the Kit using MonitorCall. (3) Roll a given character from Left to Right /Right to Left on the 7 segment displays with the specified timeinterval.	The students can know about rolling of a given character from left to right or right to left in a 7 segment display unit
4	ADC and DAC conversion (1) Interfacing ADC with 8085–ADC chip Blockdiagram–8085-ADC interfacing diagram (2) Conversion of analog input to digital – Resolution – Graph between input andoutput. (3) Interfacing DAC with 8085 –DAC chip Block diagram – 8085 DAC interfacingdiagram. (4) Conversion of digital input to analog – Resolution – Graph between input andoutput.	The students can know about interfacing ADC and DAC with 8085 microprocessor and can know about converting digital input to analog using 8085 microprocessor
5	DAC interfacing and Wave form generation. Interfacing DAC with 8085 – DDC Chip Block diagram – 8085- DAC-8085 interfacing diagram and WaveForm usingDAC a.Square wave with the specifiedperiod b.Rectangular wave with the specifiedperiod c.Ramp Wave with the specified period d.TriangularWave	The students can impart knowledge about wave formation such as square, rectangular, ramp wave and triangular wave with DAC interfacing using 8085 microprocessor
6	Curve Fitting – Fitting a straight line. (a) Principle of least Square and fitting a straightline. (b) C++ program to fit a straight line using the dataExperiment and Interpolation using the fittedequation	1. Students can know about square, curve and straight line fitting by implementing a C++ program using experimental data and interpolating them.
7	Solution of simultaneous equations – Gauss Elimination method (a) Procedure to solve Simultaneous equations using Gauss EliminationMethod (b) Solving unknown branch currents in Wheat stone’s bridge using GE methodmanually. (c) C++ program to solve theequations.	1.The students to get the detailed knowledge about different numerical methods which are used in physics field, with emphasis on how to prepare program for different methods
8	Area under the Curve (a) Numerical integration – derivation of Simpson’srule (b) C++ programs for Simpson 1/3 rd rule, Simpson 3/8 th rule and Monte carlointegration. (c) Comparison of the program output with directintegration.	1. The student should be familiar with numerical interpolation and approximation offunctions 2. The student should be familiar with numerical integration anddifferentiation
9	Matrix Multiplication (a) Multiplication of givenmatrices (b) Rotation matrixdefinition. (c) C++ program to rotate the given point about the origin using rotation matrix by the givenangle	1. The students can get familiar with the matrix multiplication using C++ programme
11	Solution of Algebraic and Transcendental equations Solution of the given equations using Newton Raphson Method – manual calculation.	1.The students to know about Newton Raphson Method using C++ programme and to compare with manual calculation

Text Books:

S. No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Microprocessors and Microcontrollers	Senthil Kumar, Saravanan, Jeevananthan	2010	Oxford University Press, India
2	Programming in Ansi C	E. Balagurusamy	2010 (5)	Tata McGraw Hill Pub


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(An Autonomous Institution)
(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)
TIRUNELVELI – 627 011
DEPARTMENT OF PHYSICS

Diploma Course in Mobile Computing Even Semester 2019-20

1. CHAIR PERSON OF THE COURSE

Smt. S. Magara Jothi Lakshmi
Head & Assistant Professor
Department of Physics
Sri Sarada college for women,
Tirunelveli.

2. COURSE TEACHER

Selvi. A.Subitha
Assistant Professor
Department of Physics
Sri Sarada college for women,
Tirunelveli.

3. COURSE TITLE

Mobile Computing

4. OUTCOME OF THE COURSE

- To enable the students in order to learn the basic principles, theory and concepts of power supplies.
- To gain knowledge by the students in order to learn electric lamps and appliances.

5. SYLLABUS /UNITS

6. UNIT-1: INTRODUCTION

Mobile computing – Mobile computing vs wireless networking –characteristics–Application–Structure of application. Mac protocols.

UNIT-2: MOBILE INTERNET PROTOCOL AND TRANSPORT LAYER

Over view of mobile ip – features – key mechanism in mobile ip – route optimization –over view of tcp/ip architecture of tcp/ip .

UNIT-3:MOBILETELECOMMUNICATIONSYSTEM Global system for mobile communication(gsm)–general packet radio service(gprs)–universal mobile telecommunication system(umts).

UNIT-4: MOBILE AD-HOC NETWORK

Ad- Hoc basic concepts –characteristics–application–design issues–routing- essential of traditional routing protocols – vehicular ad hoc networks .

UNIT-5: MOBILE PLATFORMS AND APPLICATIONS

Mobile device operating systems - commercial mobile operating systems – Software development kit:ios, android, blackberry, windows phone –m-commerce-structure-pros and cons- mobile payment system-security issues.

Text Books:

- 1.Basic Electricity - Van Vakkenburgh, Nooger & Neville, Publisher – Nostrand Reinhold Company – London.

Reference Books:

1. Prasant Kumar pattnaik, Rajib Mall,”fundamental of Mobile Computing”, PHI Learning Pvt, Ltd, NewDelhi- 2012
2. Jochen H.Schller, “ Mobile Communications”, Second edition, Pearson education, New Delhhi, 2007
3. Dharma Prakash Agarval, Qing and An Zeng,”Introduction to wireless and mobile systems”, Thomson Asia Pvt Ltd, 2005.

7. ELIGIBILITY FOR ADMISSION

+2 Or Equivalent were eligible

8. DURATION OF THE COURSE

60 Hours

9. COMPONENTS OF EXAMINATION

Theory -75 Marks
Assignment – 5 Marks
Quiz – 10 Marks
Presentation – 10 Marks

10. GRADING SYSTEM AND CERTIFICATION - Overall Grade

Marks	Grade
91 – 100	H
81 – 90	D+
71 – 80	D
61 – 70	A
51 – 60	B
41 – 50	C+
35 – 40	C

11. MODEL QUESTION PAPER

Multiple Choice Question 10 X 1 = 10
Answer the following in 250 words 5 X 5 = 25


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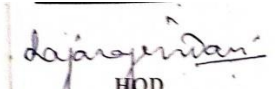

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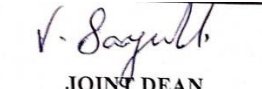
SRI SARADA COLLEGE FOR WOMEN
(An Autonomous Institution)
(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)
Institution recognized u/s 2(f) and 12(B) of UGC &
Reaccredited with “A” grade by NAAC
(A branch of Sri Ramakrishna Tapovanam, Tirupparaithurai)
Ariyakulam, Thoothukudi NH, Maharaja Nagar Post, Tirunelveli- 627 011.
DEPARTMENT OF CHEMISTRY
Programme Structure (2019 -2022)

Sem	Part	Category	Course code	Course title	Hours/week		Credits	Page No
					L	P		
1	I	Language	19P1TA1 /19P1SA1	Tamil/ Sanskrit	6		4	
1	II	Language	19P2EA1	General English I	6		4	
1	III	Core - 1	19UCHC11	Inorganic Chemistry-I	4		4	3
1	III	Core - 2	19UCHC12	Physical Chemistry-I	4		4	4
1	III	Core Practical-1	19UCHCL11	Inorganic Quantitative Analysis- I		2	1	5
1	III	Allied-1	19UMAA11	Allied Mathematics-I	6		4	
1	IV	Common	19UCES11	Environmental Studies	2		2	
Total number of papers= L+P= 6 + 1				Total	28	2	23	
2	I	Tamil/Sanskrit	19P1TA2 /19P1SA2	Tamil/ Sanskrit	6		4	
2	II	English	19P2EA2	General English II	6		4	
2	III	Core -3	19UCHC21	Inorganic Chemistry-II	4		4	6
2	III	Core -4	19UCHC22	Organic Chemistry-I	4		4	7
2	III	Core Practical-2	19UCHCL21	Inorganic Quantitative Analysis- II		2	1	8
2	III	Allied-2	19UMAA21	Allied Mathematics-II	6		4	
2	IV	Common	19UCVE 21	Value Based Education	2		2	
Total number of papers= L+P= 6 + 1				Total	28	2	23	
3	I	Language	19P1TA3/19P1SA3	Tamil/ Sanskrit	6		4	
3	II	Language	19P2EA3	General English III	6		4	
3	III	Core -5	19UCHC31	Organic Chemistry- II	4		4	9
3	III	Core Practical –3	19UCHCL31	Inorganic Qualitative Analysis		2	1	10
3	III	Allied- 1*	19UCHA31	Basic Concepts in Chemistry	4		3*	11
3	III	Allied Practical-1*	19UCHAL31	Inorganic Quantitative Analysis		2	1*	12
3	III	Allied- 1	19UPHA31	Allied physics-I	4		3	
3	III	Allied Practical-1	19UPHAL31	Allied physics practical-I		2	1	
3	III	Skill Based Core (SBC)-1	19UCHS31	Agro Chemistry	4		4	13
3	IV	Non Major Elective-1	19UNCH3A/ 19UNCH3B	Water Technology / Basics of Food Science	2		2	14/15
3	IV	Common	19UCYP31	Yoga Theory and Practices			1	
Total number of papers= L+P= 7+ 2				Total	26	4	24	
4	I	Language	19P1TA4/19P1SA4	Tamil/ Sanskrit	6		4	
4	II	Language	19P2EA4	General English IV	6		4	
4	III	Core -6	19UCHC41	Physical Chemistry- II	4		4	16
4	III	Core Practical- 4	19UCHCL41	Inorganic Preparation & Determination of Physical Constants		2	1	17
4	III	Allied-2*	19UCHA41	Advanced Topics in Chemistry	4		3*	18
4	III	Allied Practical-2*	19UCHAL41	Inorganic Qualitative Analysis		2	1*	19
4	III	Allied-2	19UPHA41	Allied physics-II	4		3	
4	III	Allied Practical-2	19UPHAL41	Allied physics practical-II		2	1	
4	III	Skill Based Core (SBC)-2	19UCHS41	Human Health Chemistry	4		4	20
4	IV	Non Major Elective-2	19UNCH4A/ 19UNCH4B	Applied Chemistry / Dairy Chemistry	2		2	21/22
4	IV	Common	19 UCDE 41	Computer for Digital Era			1	
4	V	Extension Activity	19UNCC41/19UNSS41/19UYRC41/19URRC41/19UPESY41/19UCCC41/19USSS41/19UCGC41	NCC/NSS,YRC/RRC/PESSY/CCC/SSS/GCC			1	
Total number of papers= L+P= 7+2				Total	26	4	25	
5	III	Core -7	19UCHC51	Organic Chemistry- III	6		5	23
5	III	Core -8	19UCHC52	Physical Chemistry –III	6		5	24
5	III	Core Elective- 1	19UCHE51 /19UCHE52	Polymer Chemistry / Bio Inorganic Chemistry	6		4	25/26
5	III	Skill based Elective	19UCHCP51	Chemistry for Competitive Examination & Project	3	3	6	27
5	III	Core Practical-5	19UCHCL51	Organic Analysis and Organic Estimation		4	2	28
5	IV	Common	19UCPD51	Personality Development	2		1	
Total number of papers= L+P= 5 + 2				Total	23	7	23	
6	III	Core -9	19UCHC61	Inorganic Chemistry-III	5		4	29
6	III	Core 10	19UCHC62	Organic Chemistry-IV	5		4	30
6	III	Core -11	19UCHC63	Physical Chemistry –IV	5		4	31
6	III	Core Elective- 2	19UCHE61/ 19UCHE62	Analytical Chemistry / Pharmaceutical Chemistry	4		4	32/33
6	III	Core Elective- 3	19UCHE63/ 19UCHE64	Nano Chemistry / Green Chemistry	4		4	34/35
6	III	Core Practical-6	19UCHCL61	Gravimetric Estimation & Organic Preparations		4	2	36
6	III	Core Practical- 7	19UCHCL62	Physical Chemistry Experiments		3	2	37
Total number of papers= L+P= 5 +2				Total	23	7	24	
				Grand Total	142	26	142	

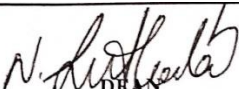
*Offered by the department



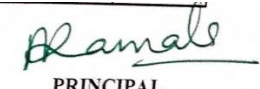
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 (Affiliated to Manonmaniam Sundaranar University, Tirunelveli)
 Institution recognised u/s 2(f) and 12(B) of UGC & Reaccredited with "A" grade by NAAC (A branch of Sri Ramakrishna Tapovanam,
 Tirupparaithurai)
 Ariyakulam, Thoothukudi NH, Maharaja Nagar Post,
TIRUNELVELI – 627 011 DEPARTMENT OF CHEMISTRY
 Course Structure for 2019 Batch

Programme Outcomes (POs)

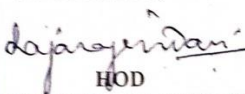
B.Sc. Chemistry curriculum is designed

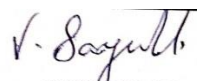
PO1	To provide the students a comprehensive understanding about the fundamentals of chemistry covering all the principles and perspectives.
PO2	To expose the diversified aspects of chemistry namely Organic Chemistry, Inorganic Chemistry, Physical Chemistry, Nano Chemistry, Polymer Chemistry and Analytical Chemistry where the students experience a broader outlook of the subject.
PO3	To understand the role of chemistry in our society and become potent enough to explore new areas of research both in chemistry and in allied fields of research innovation and development.
PO4	To impart the students the knowledge about various chemical reagents and reactions. Thereby, improve their skills of handling the corrosive, poisonous, explosive and carcinogenic chemicals making themselves employable in any kind of chemical industries.

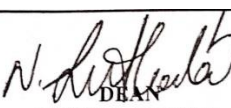
Programme Specific Outcomes (PSOs)

On completion of B. Sc. in Chemistry the students will be able to

PSO1	understand the existence of matter in the universe as solids, liquids, and gases which are composed of molecules, atoms and sub atomic particles.
PSO2	understand the importance of the elements in the periodic table including their physical and chemical nature and role in the daily life.
PSO3	understand the concept of chemistry to inter relate and interact with the other subjects namely mathematics, physics, biological science etc.
PSO4	become familiar with the specific aspects of branches of chemistry like Organic Chemistry, Inorganic Chemistry, Physical Chemistry, Nano Chemistry, Polymer Chemistry and Analytical Chemistry
PSO5	grasp the mechanisms of different types of reactions both organic and inorganic and will be able to predict the products of unknown reactions.
PSO6	get exposures of a breadth of experimental techniques using modern instrumentation.
PSO7	achieve the skills required to succeed in graduate level, professional level and the chemical industry like cement industries, agro product, Paint industries, Rubber industries, Petrochemical industries, Food processing industries, Fertilizer industries etc.
PSO8	analyse inorganic salt mixtures and organic compounds both qualitatively and quantitatively using the classical methods of analysis in practical classes.
PSO9	synthesize the chemical compounds by manoeuvring the addition of reagents under optimum reaction conditions.
PSO10	learn the laboratory skills and to transfer and interpret knowledge entirely in the working environment.


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UCH-BOS-SRI SARADACOLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI-627011
SEMESTER I

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHC11	Course Title: INORGANIC CHEMISTRY – I
Category: Core Paper-I	Credits: 4 Hrs:4

- Objectives:
- 1. To study the atomic structure from wave mechanical concept
 - 2. To know the arrangement of elements in the periodic table and the periodic properties.
 - 3. To understand the different kinds of chemical forces in molecules.
 - 4. To know the nature of compounds formed by s- and p-block elements.
 - 5. To understand the shapes of simple molecules.

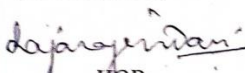
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	UNIT I –ATOMIC STRUCTURE Atom models –Bohr’s atom model –orbit and orbital g and u character of orbitals. Dual nature of matter – deBroglie equation (verification not required) - Schrodinger wave equation and its applications (no derivation)- Eigen value and Eigen function-significance of Ψ and Ψ^2 – Heisenberg’s uncertainty principle-quantum numbers and their significance-principles governing the occupancy of electrons in various quantum levels, probability distribution of electron around the nucleus – radial probability distribution, Pauli’s exclusion principle-Hund’s rule, Aufbau principle, Stability of half-filled and fully filled orbitals	On the completion of the course the student will be able to 1.Understand Atom models 2.Understand the various principles 3.Write the electronic configuration	12
2	UNIT II – PERIODIC PROPERTIES Mendeleef’s periodic law and Mendeleef’s periodic table- Mosley’s modern periodic law-Long form of periodic table- classification as s, p, d and f block elements -periodicity in properties- variation of atomic and ionic radii, electron affinity, ionisation energy and electronegativity along periods and groups – various scales of electronegativity – Pauling, Mullikan and Allred Rochow’s scale of electronegativity – factors affecting the magnitude of electronegativity – applications of electronegativity	1.Understand the classification of s,p,d and f block elements 2. Explain the periodic properties 3. Understand Pauling, Mullikan and Allred Rochow’s scale of electronegativity	12
3	UNIT III – CHEMICAL BONDING Electrovalent bond- characteristics of ionic compounds- Lattice energy- definition-Born-Lande equation (derivation not required), factors affecting lattice energy, Born-Haber cycle-enthalpy of formation of ionic compound and stability. Covalent character in ionic compounds-polarization and Fajan’s rule . Valence bond theory – hybridization of atomic orbitals and geometry of molecules –sp, sp ² , sp ³ , sp ³ d, sp ³ d ² and sp ³ d ³ hybridisation with examples. VSEPR theory-shapes of simple inorganic molecules – MO theory- applications of MOT to O ₂ , F ₂ , HF and CO Comparison of VBT and MOT.	1.Understand the chemical bonding 2. Predict the hybridization and geometry of inorganic molecules 3. Find the magnetic property of inorganic molecule by MO theory	12
4	UNIT IV –s-BLOCK ELEMENTS Occurrence, General characters of s block elements , Position of Hydrogen in the periodic table, Chemistry of Li and Be- anomalous behaviour of Li and Be and diagonal relationship between Li and Mg , Be and Al. Hydrides (classification, general methods of preparation and salient features), hydration energies, solvation and complexation tendencies of alkali and alkaline-earth metals.	1.Get knowledge about s block elements 2.Understand the Position of Hydrogen in periodic table 3.Understand the diagonal relationship between Li and Mg, Be and Al	12
5	UNIT V – p-BLOCK ELEMENTS Occurrence, General characteristics of p block elements, Group study of 13-18 group elements-anomalous properties of B- diagonal relationship between B and Si. Compounds such as hydrides, halides, oxides and oxyacids. Preparation, properties, bonding and structure of diborane, borazine and alkali metal borohydrides. Preparation, properties and technical applications of carbides and fluorocarbons. Silicones and silicates (structures only)-.Interhalogen compounds.	1.Understand the general characteristics of p block elements 2. Understand the diagonal relationship between B and Si. 3.Get knowledge about diborane and borazine	12

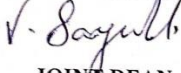
Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Principles of Inorganic Chemistry	B. R. Puri, L. R. Sharma, K. C. Kalia	2016 (1)	Vishal Publishing & Co, Jalandhar
2	Inorganic Chemistry	P.L.Soni	2017 (20)	Sultan Chand & Company, New Delhi.
3	Modern Inorganic Chemistry	RD.Madan, Malik, GD.Tuli	2010	Sultan Chand & Company, New Delhi

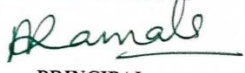
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Inorganic Chemistry	James E. Huheey, Elien A. Keiter and Richard L. Keiter	2014 (4)	Harper College Publisher, New York.
2	Advanced Inorganic Chemistry	F. A. Cotton, G. Wilkinson, C. Murillo and M. Bochman	2015 (6)	Wiley India, New Delhi.


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SEMESTER I

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHC12	Course Title: PHYSICAL CHEMISTRY – I
Category: Core Paper-2	Credits: 4 Hrs:4

- Objectives:
1. To understand the basics of physical chemistry
 2. To study the photochemical laws and photochemical reactions.
 - 3.To know the nuclear reactions and applications.

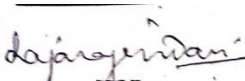
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	UNIT I –THE GASEOUS STATE Concept of ideal and real gases, gas laws, deviation from ideal behaviour-the cause of deviations of real gases from ideal behaviour. postulates of kinetic theory of gases (no derivation) Types of molecular velocities and their inter relations - mean, rms, most probable velocities - Calculation of most probable velocity, average velocity and root mean square velocity Maxwell's distribution of molecular velocities, statement of equation and explanation (no derivation) – graphic representation - effect of temperature on velocity distribution. Collision diameter - collision number - collision frequency - mean free path – Degrees of freedom of gaseous molecules - principle of equipartition of energy - heat capacity and molecular basis. Viscosity of gases and effect of temperature and pressure on coefficient of viscosity.	On the completion of the course the student will be able to 1.Understand the basics of Physical Chemistry 2.Understand the concept of ideal and real gases 3.Get knowledge about Collision diameter - collision number - collision frequency.	12
2	UNIT - II PHOTO CHEMISTRY Introduction-Difference between thermal and photochemical reactions, Laws of absorption primary and secondary reactions - Laws of photochemistry – Beer Lambert law, Grotthus - Draper law, Stark-Einstein law - Quantum efficiency – experimental determination of quantum yield. Energy transfer in photochemical reactions – Jablonski diagram - radiative and non radiative transition - internal conversion, intersystem crossing - qualitative description of fluorescence, phosphorescence - chemiluminescence, bioluminescence, thermoluminescence, photosensitization and quenching - photochemical reactions - kinetics of hydrogen-chlorine, reaction and decomposition of HI. Lasers – principle, types and uses.	1.Understand the basics of Photochemistry 2.Explain the laws of Photochemistry 3.Derive and apply equations explaining the mechanisms of photochemical reaction	12
3	UNIT - III NUCLEAR CHEMISTRY Introduction-composition of nucleus-nuclear properties, Natural radioactivity - detection and measurement of radioactivity – Geiger Nuttal rule - rate of disintegration and half life period - average life period - nuclear stability, n/p ratio, magic number, mass defect and binding energy - liquid drop model - shell model - isotopes, isobars, isotones and isomers. Artificial radioactivity - nuclear fission and nuclear fusion – mechanisms – applications - differences – Stellar energy - nuclear reactors - hazards of radiations - fertile and fissile isotopes. Applications of radioisotopes – C14 dating, rock dating, neutron activation analysis and isotope as tracers - study of reaction mechanism.	1. Understand the basics of nuclear Chemistry 2.Get the knowledge about working principles of Nuclear reactor. 3. Understand the Applications of radioisotopes.	12
4	UNIT - IV THE SOLID STATE Characteristics of solids, structure of crystals, Difference between crystalline and amorphous solids - isotropy and anisotropy - crystal lattices – Lattice energy –Born equation and its derivatives laws of crystallography - elements of symmetry of crystals - crystal systems - unit cell - space lattice - Bravais lattices - Miller indices - cubic and hexagonal packing – radius ratio rule – tetrahedral and octahedral voids Bragg’s equation, derivation and applications - determination of structure of crystals by X-ray diffraction methods - rotating crystal and powder method, structure of NaCl, KCl and ZnS. Imperfections in a crystal - Schottky defects, Frenkel defects, Nonstoichiometric defects- - use of crystallographic data for the determination of Avogadro number and molecular mass	1.Understand the characteristics of solids, structure of crystals 2.Get knowledge about Schottky defects, Frenkel defects, 3.Determination of structure of crystals by X-ray diffraction methods	12
5	UNIT - V THEORY OF DILUTE SOLUTIONS Colligative properties of dilute solutions: Raoult’s law of relative lowering of vapour pressure, elevation of boiling point, depression of freezing point and osmotic pressure,Ebullioscopic constant-Cryoscopic constant- Relation between colligative properties and Molecular mass –Osmosis-osmotic pressure-.laws of osmotic pressure - osmotic pressure and concentration of solute- Experimental methods for determining various colligative properties, degree of dissociation and association of solutes Abnormal molecular mass – Van’t Hoff factor.	1. Understand the colligative properties of dilute solutions. 2. Understand the relation between colligative properties and Molecular mass 3. Determine various colligative properties	12

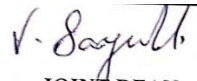
Text Books:

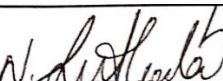
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Principles of Physical Chemistry	Puri, Sharma and Pathania	2019 (48)	Vishal Publishing Co, New Delhi
2	Text Book of Physical Chemistry	P.L.Soni	2011 (23)	Sultan Chand & Company, New Delhi
3	Atkins' Physical Chemistry	Peter Atkins ,Julio de Paulo	2010 (9)	OUP Oxford

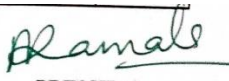
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Advanced Physical Chemistry	Gurdeep Raj	2019 (41)	Goel Publishing House.
2	Physical Chemistry	G.M.Barrow	2018 (6)	Tata McGraw Hill


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SEMESTER I

Programme:B.Sc	Subject: CHEMISTRY
Course code: 19UCHCL11	Course Title: Inorganic Quantitative Analysis-I
Category: Core Practical-I	Credits: 1 Hrs:2

- Objectives:
- 1.To enable the students to acquire the quantitative skills in volumetric analysis.
 - 2. At the end of the course, the students should be able to plan experimental projects and execute them.

Detailed Syllabus	Course Outcome	Hrs
Acidimetry and alkalimetry 1. Estimation of oxalic acid – Std. oxalic acid 2. Estimation of Na ₂ CO ₃ – Std. Na ₂ CO ₃ 3. Estimation of hydrochloric acid – Std. oxalic acid Permanganometry 4. Estimation of sodium oxalate – Std. oxalic acid 5. Estimation of ferrous ammonium sulphate – Std. ferrous ammonium sulphate 6. Estimation of ferrous sulphate – Std. oxalic acid	On the completion of the course the student will be able to 1. Understand the principles of using standard and link solutions and making up of given solution. 2. Get idea about the role of indicator at different pH range in the acidimetry and alkalimetry. 3. Apply acidimetric and alkalimetric method for the quantitative volumetric estimation of acids and bases. 4. Estimate the amount of inorganic compounds permanganometrically. 5. Apply various volumetric procedure for the estimation of any inorganic compounds	2 Hrs/ Week

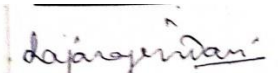
Internal -40 marks
20 marks - Regularity (Attendance, Record submission)
20 marks- Average of best four estimations in regular class work
External -60 marks
10 marks- Record (atleast 4 volumetric estimations)* 10 marks - Procedure
40 marks -Experiment
*Experiments done in the class alone should be recorded
(Students having a bonafide record only should be permitted to appear for the practical examination)

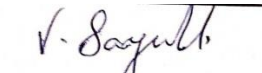
Text Books:

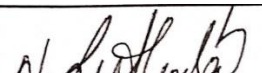
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Practical Chemistry	O.P.Pandey, D.N.Bajpai & S.Giri	2001 (8)	S.Chand & Company Ltd, New Delhi
2	Vogel’s Text Book of Quantitative Chemical Analysis	A.I. Vogel	1997 (5)	Longman Group, Singapore

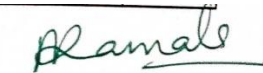
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Advanced Course in Practical Chemistry	Ghoshal, Mahapatra & Nad	2011 (3)	New Central Book Agency (P) Ltd., Kolkata
2	Practical Chemistry	S.Sundaram, P.Krishnan, P.S.Raghavan	2002 (1)	S.Viswanathan (Printers & Publishers) (P) Ltd., Chennai


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SEMESTER II

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHC21	Course Title: INORGANIC CHEMISTRY – II
Category: Core Paper-3	Credits: 4 Hrs:4

Objectives:

- 1.To know the basic principles of metallurgy and the chemistry of d- Block elements
- 2.To learn the chemistry of f- Block elements
- 3.To learn the basic analytical methods
- 4.To study the chemistry of noble gases

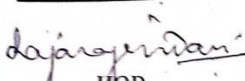
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	ELEMENTS OF ZERO GROUP Position of inert gases in the periodic table- reason for placing in zero group. Occurrence - isolation of noble gases from the atmosphere - separation of the gases from one another - general physical properties - special properties of helium - isotopes of helium - uses of noble gases - importance of inert gases in theoretical chemistry - chemical properties - xenon chemistry: preparation and properties of fluorides, oxides and oxofluorides of xenon - xenates and perxenates - xenon fluoride complexes - structure and bonding in xenon compounds. Fluorides of Krypton and Radon - hydrates and clathrates of noble gases - uses of clathrate compounds.	On the completion of the course the student will be able to 1.Understand the isolation method of inert gases 2.Get knowledge about inert gases. 3.Get knowledge about non aqueous solvents.	12
2	CHEMISTRY OF d & f- BLOCK ELEMENTS d- block elements -Introduction – Position of d block elements. Occurrence, General characteristics of d- Block elements – Group study of Titanium, Vanadium, Iron, Coinage and Zinc group metals. f- block elements - Introduction- classification – position of Lanthanides in periodic table. Occurrence, General characteristics of f-block elements, Synthetic elements, comparative account of lanthanides and actinides – oxidation states, magnetic properties, colour and spectra – separation by ion exchange and solvent extraction methods – lanthanide contraction — preparation, properties and uses of ceric ammonium sulphate, thorium dioxide, thorium nitrate, uranium hexafluoride, uranylacetate.	1.Understand the characteristics of d and f block elements. 2. Get knowledge about lanthanides and actinides. 3.Understand the preparative methods of some f block elements	
3	ACIDS, BASES & NON AQUEOUS SOLVENTS Arrhenius Definition, Bronsted Lowry concept- Basicity or Protocity of an acid, Acidity or Hydroxity of base, Levelling Solvent- Lux Flood Concept, Cady- Elsey concept, Lewis concept, Molecular structure and relative Acidity or Basicity- Effect of substituents on acidity of carboxylic acids- Relative acidity of HOY Molecules, Usanovich concept, -Hard and Soft Acids and Bases- Pearson's principle- Theories of hardness and softness- Electronegativity of hardness and softness- Applications of HSAB theory Non aqueous solvent- Reactions in non aqueous solvents- classification of solvents- liquid ammonia- alkali metals in liquid ammonia – Cavity model- acid- base neutralization reaction- precipitation reactions- Amphoteric behaviour- solvolysis reactions- liquid hydrogen fluoride- liquid sulphur dioxide.	1. Understand the various concept of acids and bases 2. Understand the applications of HSAB theory 3. Get knowledge about non aqueous solvents	12
4	METALS & METALLURGY Occurrence of metals- various steps involved in metallurgical process. Ores and minerals in lithosphere -Mineral wealth of India- principles of metallurgy-concentration of ores – froth floatation, magnetic separation, calcination, roasting and smelting. Purification of metals – electrolysis, zone refining, van Arkel deBoer methods. Extraction of the following metals in pure form - Ti, V, Th and U	1.Understand principle of metallurgy 2.Get knowledge about various concentration and purification process 3. Explain the extraction of Ti, V, Th and U	12
5	THEORY OF INORGANIC PRACTICALS Qualitative Analysis: Applications of solubility product and common ion effect in the precipitation of cations – Interfering acid radicals and their elimination (oxalate, fluoride, borate, phosphate, chromate, arsenite and arsenate). Titrimetry: Basic requirements of a titration reaction-Primary standard- Molarity, molality formality, normality, wt% ppm, mili equivalence and millimoles -problems Types of titrimetric reactions – acid-base, redox, Iodometric, Iodimetric, precipitation and complexometric titrations – Indicators- cautions in volumetric titrimetry. Gravimetric analysis: Precipitation from homogeneous solution- precipitants -conditions for precipitation – co-precipitation and post precipitation - washing of precipitates. Minimisation of errors.	1.Get knowledge about various titrimetry. 2.Understand the role of EDTA in complexometry titrations. 3.Minimize errors	12

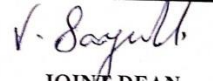
Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Principles of Inorganic Chemistry	B. R. Puri, L. R. Sharma, K. C. Kalia	2016 (1)	Vishal Publishing & Co, Jalandhar
2	Inorganic Chemistry	P.L.Soni	2017 (20)	Sultan Chand & Company, New Delhi.
3	Modern Inorganic Chemistry	RD.Madan, Malik, GD.Tuli	2010	Sultan Chand & Company, New Delhi

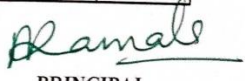
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1	Inorganic Chemistry	James E. Huheey, Elien A. Keiter and Richard L. Keiter	2014 (4)	Harper College Publisher, NewYork.
2	Advanced Inorganic Chemistry	F. A. Cotton, G. Wilkinson, C. Murillo and M. Bochman	2015 (6)	Wiley India, New Delhi.


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SEMESTER II

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHC22	Course Title: ORGANIC CHEMISTRY – I
Category: Core Paper-4	Credits: 4 Hrs: 4

Objectives:

- 1.To learn the classification and nomenclature of organic compounds.
2. To learn the chemistry of hydrocarbons.
3. To study the important organic reactions and mechanisms
4. To study the concepts of aromaticity

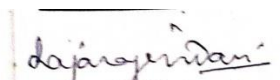
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	IUPAC NOMENCLATURE & ISOMERISM IUPAC nomenclature of common organic compounds (upto C 10)- alkanes, alkenes, alkynes, cycloalkanes with and without bridges, Hetero cyclic compounds, aromatic compounds and functional groups. Isomerism- Definition, Types- Structural Isomerism- Chain, Positional, Functional, metamerism, Tautomerism and ring chain. Stereo isomerism- Geometrical- cis, trans & optical (definition only)	On the completion of the course the student will be able to 1. Write the IUPAC name of any organic compounds 2. Get knowledge about structural isomerism 3. Get knowledge about stereo isomerism	12
2	BASICS OF REACTION MECHANISM Electron Displacement effect - Electronic effects - inductive effect- applications, resonance effect – resonance structures–conditions for resonance, applications – stability of resonance structures, hyper conjugation, electromeric effect. Reaction Mechanism - Dissociation of bonds – homolysis and heterolysis, electrophiles and nucleophiles, Type of reactions - substitution, addition, elimination and polymerisation reactions. Reaction Intermediates - Definition, formation, structure and stability of carbocations, carbanions and free radicals	1. Understand the Electronic effects 2. Understand the reaction mechanism 3. Get knowledge about Reaction intermediates	12
3	ALKANES, ALKENES & ALKYNES Alkanes - General physical and chemical properties, preparation of CH ₄ , mechanism of halogenations Alkenes - General physical and chemical properties, preparation of ethylene Addition to unsymmetrical olefins Markownikoff's rule and peroxide effect, hydroboration ozonolysis. Alkynes - General physical and chemical properties, preparation of acetylene, acidity of alkynes and formation of metal acetylides.	1. Understand the physical and chemical properties of alkanes, alkenes and alkynes. 2. Understand Markownikoff's rule 3. Get knowledge about the preparative methods of alkanes, alkenes and alkynes.	12
4	HALOGEN DERIVATIVES SN1 and SN2 mechanisms - E1 and E2 mechanisms- Hoffmann's and Saytzeffs rule. Introduction-mono halogen derivatives, preparation, properties and uses of methyl chloride, chloroform, carbon tetrachloride, vinyl chloride and allyl chloride- preparation and uses of westron, westrosol, freon and chloroprene	1. Understand the Hoffmann's and Saytzeffs rule. 2. Get knowledge about substitution and elimination reactions 3. Get knowledge about the halogen derivatives	12
5	AROMATICITY & ANTI AROMATICITY General characteristics of aromatic compounds - aromaticity – Huckel's rule with examples- non – benzenoid aromatic compounds (definition and examples only) Anti aromaticity & non aromaticity. Preparation, properties and structure of benzene, Theories of aromaticity- VB Theory, MO Theory.	1. Understand the concept of aromaticity and Huckel's rule. 2. Predict the aromaticity of any organic compound 3. Get knowledge on preparative methods of benzene.	12

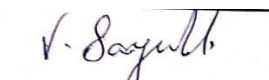
Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Organic Chemistry, Vol.I	I.L.Finar	2012 (6)	Pearson Education pvt, New Delhi
2	Organic Chemistry	Morrison and Boyd	2011 (7)	Pearson Education pvt, New Delhi
3	Advanced Organic Chemistry	Jerry March	2012 (6)	John Wiley and Sons, New York
4	Text book of Organic Chemistry	P.L Soni & H.M.Chawla	2012 (29)	Sultan Chand & Sons

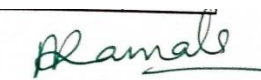
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Modern Organic Chemistry	Jain.M.K, Sharma.S.C	2013 (4)	Vishal Publications, Jalandar
2	A text Book of Organic Chemistry	Bahl and ArunBahl	2012 (21)	S. Chand and Sons, New Delhi


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SEMESTER II

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHCL21	Course Title: Inorganic Quantitative Analysis-II
Category: Core Practical-2	Credits: 1 Hrs: 2

- Objectives:
- 1. To enable the students to acquire the quantitative skills in volumetric analysis.
 - 2. To make the students thorough in inorganic complex preparations
 - 3. At the end of the course, the students should be able to plan experimental projects and execute them.

Detailed Syllabus	Course Outcome	Hrs
Iodometry 1. Estimation of copper – Std. copper sulphate 2. Estimation of $K_2Cr_2O_7$ – Std. $K_2Cr_2O_7$ Dichrometry 3. Estimation of ferrous iron – Std. ferrous ammonium sulphate 4. Estimation of $K_2Cr_2O_7$ – Std. $K_2Cr_2O_7$ Complexometry 5. Estimation of Zn – Std. $ZnSO_4$ 6. Estimation of Pb – Std. $ZnSO_4$ 1. 7. Estimation of Mg – Std. $ZnSO_4$	On the completion of the course the student will be able to 1. Understand the principles of using standard and link solutions and making up of given solution. 2. Apply iodimetry and dichrometry method for the quantitative volumetric estimation. 3. Estimate the amount of inorganic compounds complexometrically. 4. Understand the role of EDTA in complexometry titrations. 4. Apply various volumetric procedure for the estimation of any inorganic compounds.	2 Hrs/ Week

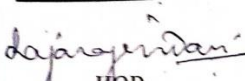
Internal -40 marks
20 marks - Regularity (Attendance, Record submission)
20 marks- Average of best four estimations in regular class work
External -60 marks
10 marks- Record (atleast 4 volumetric estimations)* 10 marks - Procedure
40 marks -Experiment
*Experiments done in the class alone should be recorded
(Students having a bonafide record only should be permitted to appear for the practical examination)

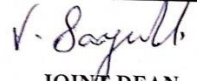
Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Practical Chemistry	O.P.Pandey, D.N.Bajpai & S.Giri	2001 (8)	S.Chand & Company Ltd, New Delhi
2	Vogel’s Text Book of Quantitative Chemical Analysis	A.I. Vogel	1997 (5)	Longman Group, Singapore

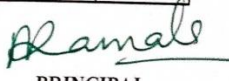
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Advanced Course in Practical Chemistry	Ghoshal, Mahapatra & Nad	2011 (3)	New Central Book Agency (P) Ltd., Kolkata
2	Practical Chemistry	S.Sundaram, P.Krishnan, P.S.Raghavan	2002 (1)	S.Viswanathan (Printers & Publishers) (P) Ltd., Chennai


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11

SEMESTER III

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHC31	Course Title: Organic Chemistry -II
Category: Core Paper- 5	Credits: 4 Hrs: 4

Objectives:

1. To learn about aliphatic and aromatic aldehyde and ketone.
2. To know the chemical reactions of mono, di and unsaturated carboxylic acids.
3. To study the derivatives of the carboxylic acids.
4. To understand the chemistry of organo metallic and organo sulphur compounds
5. To study the chemistry of reactive methylene compounds and tautomerism

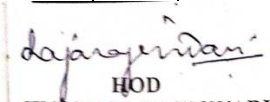
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Alcohols Monohydric alcohols: Classification (1°, 2° and 3°) – Ethanol: preparation (from alkenes, alkanes, Grignard reagent) – Physical properties, acidic nature of alcohols, chemical reactions and uses. Dihydric alcohol: Ethylene glycol: Preparation, chemical properties and uses. Trihydric alcohol: Glycerol: Preparation, chemical properties and uses Aromatic Alcohols: Preparation and properties of Phenol and Benzyl alcohol, Substituted Phenols – Nitrophenol, Picric acid, Cresol, Catechol, Resorcinol, Phloroglucinol and Aminophenol.	On the completion of the course the student will be able to 1. Tell the Preparation, chemical properties and uses of aliphatic monohydric, dihydric and polyhydric alcohol. 2. Tell the Preparation, chemical properties and uses of aromatic monohydric, dihydric and polyhydric alcohol. 3. Tell the preparation and uses of substituted phenols.	12
2	Aliphatic and Aromatic Aldehydes and Ketones Aliphatic Aldehydes and Ketones Mechanism of nucleophilic addition – reactivity of carbonyl group – preparation and properties of Acetaldehyde, Acrolein, Crotonaldehyde, Glycolaldehyde, Aldol, Diacetone alcohol and Ethyl methyl ketone – importance of flavouring agents – vanillin. Aromatic Aldehydes and Ketones Preparations and properties of benzaldehyde, Cinnamaldehyde, salicylaldehyde, Acetophenone, Benzophenone and quinones.	1. Apply the chemistry of aldehydes and ketones 2. Write the mechanism of naming reactions related to carbonyl groups. 3. Prepare aldehydes and ketones	12
3	Mono and Dicarboxylic Acid and its Derivatives Aliphatic acids: Preparation and properties of formic acid and acetic acid, malonic acid and succinic acid - structural effect on strength of carboxylic acids. Halogen substituted acids: Preparation and properties of monochloro, dichloro, trichloro acetic acids. Influence of halogen atom on the strength of acids. Unsaturated dicarboxylic acid: Preparation and properties of maleic and fumaric acids – geometrical isomerism exhibited by maleic and fumaric acid Hydroxy acids: General methods of preparation and properties of tartaric acid and lactic acid. Action of heat on α, β and γ-hydroxy acids. Amino acids: Preparation and properties of glycine and alanine. Aromatic acids: Preparation and properties of benzoic acid-salicylic acid-anthranilic acid. phthalic acid and its derivatives phthalic anhydride and phthalimides.	1. Tell the chemistry of saturated, unsaturated and substituted carboxylic acid. 2. Prepare saturated, unsaturated and substituted carboxylic acid 3. Understand the property of saturated, unsaturated and substituted carboxylic acid.	12
4	Ethers, Thioether and Epoxides Ethers: Nomenclature - General methods of preparation, Williamson's Synthesis - Properties - Estimation of number of alkoxy groups – Ziesel's method. Thioethers: Nomenclature - General methods of preparation – properties - mustard gas. Epoxides: Synthesis – reactions – acid and base-catalyzed ring opening of epoxides – (Symmetrical epoxides only). Preparation and properties of thioalcohols and thioethers – sulphonal- mustard gas and sulphones	1. Develop their knowledge on the chemistry of organometallic compounds 2. Understand the synthetic applications of organometallic compounds 3. Get knowledge about Organo Sulphur compounds	12
5	Reactive Methylene Compounds & Tautomerism Reactivity of methylene groups – preparation and synthetic uses of diethyl malonate, ethyl acetoacetate and Cyanoacetic ester. Tautomerism- definition – various types, keto – enol, amido – imido, nitro – acinitro and oxime – nitroso tautomerism.	1. Prepare diethyl malonate and ethyl acetoacetate. 2. Explain the reactivity and importance of diethyl malonate and ethyl acetoacetate 3. Understand the concept of tautomerism	12

Text Books:

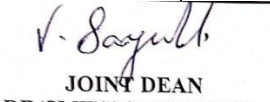
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Text book of Organic Chemistry	P.L Soni & H.M. Chawla	2012 (29)	Sultan Chand & Sons
2	A text book of organic Chemistry	K.S. Tewari, N.K. Vishil, S.N. Mehotra	2001 (1)	Vikas Publishing House Pvt Ltd., New Delhi
3	A text Book of Organic Chemistry	Bahl and Arun Bahl	2012 (21)	S. Chand and Sons, New Delhi

Reference Books:

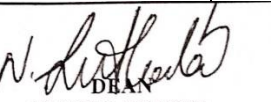
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Organic Chemistry	Morrison and Boyd	2011 (7)	Pearson Education Pvt Ltd, New Delhi
2	Organic Chemistry Vol.I	I.L. Finar	2012 (6)	Pearson Education Pvt Ltd. New Delhi



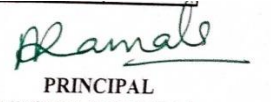
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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER III

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHCL31	Course Title: Inorganic Qualitative Analysis
Category: Core Practical-3	Credits: 1 Hrs: 2

Objectives:

1.
- To understand the systematic analysis of inorganic saltmixture.
2.
- To create an awareness on eco-friendly approach in saltanalysis

Qualitative analysis of inorganic salt mixtures containing two acidic radicals (one should be an interfering radical) and two basic radicals

Detailed Syllabus	Course Outcome	Hrs
Acidic radicals Simple acidic radicals: Carbonate, Nitrate, Sulphate and Chloride Interfering acidic radicals: Borate, Fluoride, Oxalate and Phosphate. Basic radicals Group I: Lead Group II: Copper, Cadmium, Bismuth. Group III :Iron. Group IV: Cobalt, Nickel, Manganese. Group V: Barium, Strontium. Group VI: Magnesium,Ammonium.	On the completion of the course the student will be able to 1. Analyzethe acid radicals present in anygiven inorganicsalt. 2. Eliminate the interfering acidradicals. 3. Identify the group of the basicradical. 4. Analyzethe basic radicalssystematically. 5. Develop their qualitative analysis skill of any given inorganicsalt.	2 Hrs/ Week

Internal – 40 marks

20 marks - Regularity (Attendance, Record submission)

20 marks – Average of best four salt mixtures in regular class work. External -60 marks

20 marks – Record (atleast 4 salt mixtures)*

40 marks – Analysis (10 marks for each radical)

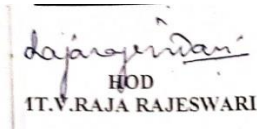
*Experiments done in the class alone should be recorded (Students having a bonafide record only should be permitted to appear for the practical examination)

TextBooks:

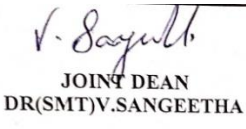
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Practical Chemistry	O.P.Pandey, D.N.Bajpai&S.Giri	2001 (8)	S.Chand& Company Ltd, New Delhi
2	Laboratory Course-I	N. S. Bhandari, K. S. Dhami, K. B. Melkani, Charu C.Pant	2017 (1)	Uttarakhand Open University, Haldwani, Nainital
3	A Book of Practical Chemistry	G. S. Gugale et al.,	2017 (2)	NiraliPrakashanYogiraj Printers and Binders, Pune.
4	Practical Chemistry	S.Sundaram, P.Krishnan, P.S.Raghavan	2002 (1)	S.Viswanathan (Printers & Publishers) (P) Ltd., Chennai

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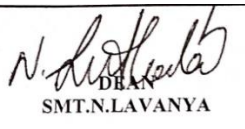
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Vogel’s text book of Quantitative Chemical Analysis	A.I. Vogel	1997 (5)	Longman Group, Singapore
2	Chemistry: Inorganic Qualitative Analysis in the Laboratory	Clyde Metz, Mary E. Castellion	1980 E-Content ISBN 0-12-503354-0	Academic Press, New York, San Francisco, London



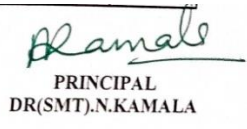
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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER III

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHA31	Course Title: Basic Concepts in Chemistry
Category: Allied – 1*	Credits: 3 Hrs: 4

Objectives:

- 1.To learn about atomic structure and bonding.
- 2.To learn the principles of reactions of organic compounds.
- 3.To learn the chemistry of basic aromatic compounds.
- 4.To understand the nuclear particles and few nuclear reactions.
- 5.To study about photochemical reactions.

Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Inorganic chemistry Atomic structure: electronic configuration - Aufbau principle - Pauli's exclusion principle- Hund's rule. Bonding: electrovalent, covalent, hydrogen bonds. Hybridization: concept- VB theory – sp, sp ² , sp ³ hybridisation with suitable example. VESPR theory – Geometry of CH ₄ , C ₂ H ₄ , C ₂ H ₂ - BeCl ₂ , BF ₃ , NH ₃ , H ₂ O, PCl ₅ , IF ₅ , IF ₇ . Molecular orbital theory- applications of MOT to homonuclear (O ₂ , F ₂), and heteronuclear (HF, CO and NO) diatomic molecules. Comparison of VBT and MOT.	On the completion of the course the student will be able to 1. Write the electronic configuration of elements. 2. Tell about the chemical bonding between the molecules. 3. Find the hybridization and geometry	12
2	Organic reactions Heterolytic and homolytic cleavage - nucleophiles and electrophiles- reaction intermediates - formation, shape and stability of carbocations, carbanions and free radicals -types of reaction - substitution, addition, elimination, rearrangement and polymerization reactions.	1. Get knowledge about the nature of bond cleavage. 2. Understand the preparation and properties of reaction intermediates. 3. Understand the simple organic reactions	12
3	Aromatic compounds General characteristics of aromatic compounds – aromaticity – Huckel's rule with examples – non-benzenoid aromatic compounds (definition and examples only) Anti aromaticity & non aromaticity – preparation, properties and structure of benzene and naphthalene.	1. Explain the general characteristics of aromatic compounds. 2. Find the aromaticity of any organic compound. 3. Get knowledge about the preparative methods of benzene and Naphthalene	12
4	Nuclear Chemistry Nuclear stability – n/p ratio – packing fraction – mass defect – binding energy – isotopes, isobars, isotones with examples. Separation of isotopes by diffusion method – group displacement law – radioactive series – Nuclear fission, Nuclear fusion – Application of radio isotopes (studying reaction mechanism, radio diagnosis and therapy, C ¹⁴ dating, Irradiation of Food, Agriculture)	1. Find the nuclear stability of molecules 2. Explain the role of nuclear reactions in the Nuclear Reactor. 3. Get knowledge about radioactive isotopes.	12
5	Photochemistry Definition-comparison between thermal and photochemical reactions- Laws of photochemistry-Beer Lambert's law - Grothus Draper law- Stark-Einstein's law - Quantum yield-reason for low and high quantum yield-determination of quantum yield-Jablonski diagram-fluorescence, phosphorescence, chemiluminescence and bioluminescence-definition with examples.	1. Get the knowledge of photochemical laws. 2. Find the quantum yield of photochemical reactions 3. Explain the photochemical and photo physical processes and its mechanisms.	12

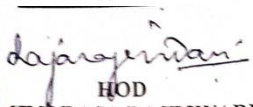
Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Text Book of Physical Chemistry	P.L.Soni	2011 (23)	Sultan Chand & Company, New Delhi
2	Principles of Inorganic Chemistry	B. R. Puri, L. R. Sharma, K. C. Kalia	2016 (1)	Vishal Publishing & Co, Jalandhar
3	Organic Chemistry	Morrison and Boyd	2011 (7)	Dorling Kindersley (India) Pvt. Ltd, New Delhi.

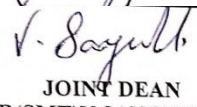
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Advanced Inorganic Chemistry	F. A. Cotton, G. Wilkinson, C. Murillo and M. Bochman	2015 (6)	Wiley India, New Delhi.
2	Principles of Physical Chemistry	Puri, Sharma and Pathania	2019 (48)	Vishal Publishing Co, New Delhi

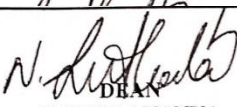
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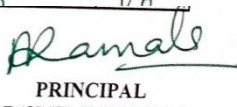
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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER III

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHAL31	Course Title: Inorganic Quantitative Analysis
Category: Allied Practical – 1*	Credits: 1 Hrs:2

Objective:

1. To enable the students to acquire the quantitative skills in volumetric analysis.

Detailed Syllabus	Course Outcome	Hrs
Acidimetry and Alkalimetry 1. Estimation of Oxalic acid – Std. Oxalic acid 2. Estimation of Na ₂ CO ₃ – Std. Na ₂ CO ₃ 3. Estimation of Hydrochloric acid – Std. Oxalic acid Permanganometry 4. Estimation of Ferrous ammonium sulphate – Std. Ferrous ammonium sulphate 5. Estimation of Oxalic acid – Std. Oxalic acid 6. Estimation of Ferrous sulphate – Std. Oxalic acid	On the completion of the course the student will be able to 1. Understand the principles of using standard and link solutions and making up of given solution. 2. Get idea about the role of indicator at different pH range in the acidimetry and alkalimetry. 3. Apply the acidimetric and alkalimetric method for the quantitative volumetric estimation of acids and bases. 4. Estimate the amount of inorganic compounds permanganometrically. 5. Apply the various volumetric procedure for the estimation of any inorganic compounds.	2 Hrs/ Week

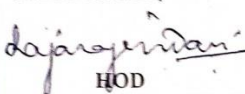
Internal -40 marks
20 marks - Regularity (Attendance, Record submission)
20 marks- Average of best four estimations in regular class work
External -60 marks
10 marks- Record (atleast 4 volumetric estimations)* 10 marks - Procedure
40 marks -Experiment
*Experiments done in the class alone should be recorded
(Students having a bonafide record only should be permitted to appear for the practical examination)

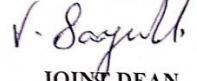
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1	Practical Chemistry	O.P.Pandey, D.N.Bajpai & S.Giri	2001 (8)	S.Chand & Company Ltd, New Delhi
2	Vogel's Text Book of Quantitative Chemical Analysis	A.I. Vogel	1997 (5)	Longman Group, Singapore

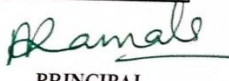
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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER III

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHS31	Course Title: Agro Chemistry
Category: Skill Based Core (SBC) -I	Credits: 4 Hrs:4

Objectives:

1.
- To learn aboutfertilizers
2.
- To learn aboutpesticides
3.
- To study the origin ofsoil
4.
- To study the characterisation ofsoils.
5.
- To get knowledge about soiltesting

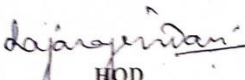
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Characteristics of soil soil - Main components of soil - organic, inorganic constituents - soil formation - factors favouring soil formation. Physical aspects - soil texture - pore space - bulk density, particle density, soil structure–types, class, factors affecting soil structure - soil colour - surface area - soil colloids - plasticity, shrinkage - flocculation and deflocculation, soil air, soil temperature and their importance in plant growth. Acid, alkaline and saline soils – diagnosis - Methods of reclamation and after care.	On the completion of the course the student will be able to 1.Understandthe physical aspects of soil 2.Get knowledge about acid, alkaline and saline soils 3. Identify the suitable soil for plant growth.	12
2	Soil Biology Soil flora, Soil fauna. Environmental factors influencin g microbial activity. Beneficial role of soil organism- Decomposition of organic matter in soil and synthesis of Humus-carbon cycle, nitrogen cycle- biological nitrogen fixation- effects of cultural practices on soilorganisms	1. Get an idea about soilBiology 2. Understand the beneficial role of soil organism. 3. Get an idea about carbon cycle, nitrogen cycle.	12
3	Soil testing & Laboratory Work Concept and objectives – soil survey and its importance, soil sampling, tools, collection, processing, dispatch of soil sample. 1. Estimation of total organic compound, available nitrogen and phosphorus in the soil sample. 2.Determination of pH, EC, moisture content, bulk density and particle density of the soil sample.	1. Get an idea about the soilsample collection. 2. Estimate the total organic compound, available nitrogen and phosphorus in the soilsample. 3. Determine pH, EC, moisturecontent, bulk density and particle density of the soil sample.	12
4	Fertilizers Definition, Classification, characteristics of a good fertilizer-macronutrients -role of nitrogen, potassium and phosphorus on plant growth – manufacture of urea, muriate of potash and triple superphosphate. Complex fertilizers, mixed fertilizers & biofertilizers – their composition, advantages of biofertilizers, factors affecting fertilizer use. Micronutrients – their role in plants. Manures: Bulky organic manures – Farm yard manure - oil cakes - blood meal – fish manures - Composting process – handling and storage.	1. Understand the importance of microand macro nutrients for plant growth. 2. Get knowledge about the preparation of chemicalfertilizers. 3. Get knowledge aboutbiofertilizers	12
5	Pesticides Definition - Classification of Pesticides based on the use and chemical composition – examples - general methods of application – Benefits of pesticides - Potential hazards. Safety measures -first aid. Insecticides: Plant products – Nicotine, pyrethrin – Inorganic pesticides – borates. Organic pesticides – D.D.T. and BHC. Fungicide: Sulphur compounds, Copper compounds, Bordeaux mixture. Herbicides: Acaricides – Rodenticides. Attractants – Repellants.	1.Classify the types of pesticides like insecticides, fungicides and herbicides. 2.Tell the composition of pesticides 3. Make use of Bio insecticides	12

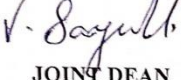
Text Books:

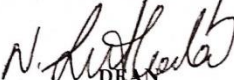
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Introductory Soil Science	Dilip Kumar Das	2002 (1)	Kalyani Publishers, New Delhi
2	Textbook of Soil Science	Biswas,T.D and Mukherjee.S.K	2010 (21)	Tata McGraw-Hill Education (P) Ltd, New Delhi.
3	Industrial Chemistry	B. K. Sharma	2011 (16)	Goel Publishing House, Meerut

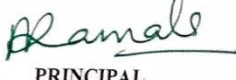
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Fundamentals of Soil Science	Shivanand Tolanur	2004 (1)	International Book Distributing Co, Lucknow
2	Applied Chemistry	K.Bagavathi Sundari	2006 (1)	MJP Publishers, Chennai
3	Soil Chemistry, Soil Fertility & Nutrient Management	ICAR e-Course ForB.Sc (Agriculture) and B.Tech (Agriculture)	E content	www.AgriMoon.CoM


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER III

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UNCH3A	Course Title: Water Technology
Category: Non Major Elective-1	Credits: 2 Hrs:2

Objectives:

1.
- To acquire the knowledge of WaterPollution
2.
- To understand water qualityparameters
3.
- To know water purificationtechniques
4.
- To understand Waste watertreatment
5.
- To gain knowledge in Restoration andManagement

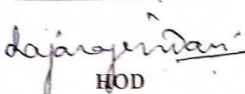
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Water Quality Parameters Introduction to sources of water. Physical, Chemical and biological water quality parameters – water quality standards for drinking water – BIS, ICMR and WHO. Determination of pH, Total hardness-temporary or carbonate hardness, permanent hardness or non-carbonate hardness. Units of hardness,TDS, DO, BOD and COD.	On the completion of the course the student will be able to 1. Realize the importance of quality of water in day to daylife 2. Knowthewater quality standards for drinking water 3. Determine the water quality parameters such as pH,hardness, TDS, DO, BOD and COD.	6
2	Water Purification Disadvantages of hard water – In domestic, in industry and in steam generation in boilers. Effect of iron and manganese in water. Purification of water: Sedimentation, Filtration, chlorination, break point chlorination, ozone and UV light disinfection, water softening permutit process,ion – exchange process, Sea water as a source of drinking water - Electro dialysis method and reserve osmosis method for purifications ofwater.	1. Get knowledge in water purification techniques 2. Understand the purification of water for industrialpurposes. 3. Understand the purification of drinkingwater.	6
3	Water Pollution Definition – sources of water pollution – types of water pollutants: sewage and domestic wastes, industrial effluents- inorganic pollutants- organic pollutants, agricultural discharges, detergents, disease causingagents and radioactive materials. Eutrophication and its effects.	1.Explain about air, water pollution, toxicity of chemicals and their biochemical effect. 2.Understand the concept of Eutrophication 3.Get awareness about pollution and their biochemical effect.	6
4	Waste Water Treatment Elementary ideas of waste water treatment: pre-treatment- primary treatment – secondary treatment, Trickling and activated sludge process – tertiary treatment: evaporation, adsorption – clinical precipitation	1. Get knowledge about the elementary ideasofof waste water treatment 2. Get knowledge about the secondary and tertiary watertreatment 3. Understand the concept of clinical precipitation	6
5	Restoration and Management Importance of lakes and rivers – stresses on the Indian rivers and their effects – A restoration case study: Ganga Action plan: objectives implementation and drawbacks. Rain water harvesting – water recycling – Thewater prevention and control Pollution Act 1974.	1. Get knowledge in Restoration and Management of water. 2. Understand the Ganga Action plan. 3.Understand abouttheRain waterharvesting.	6

Text Books:

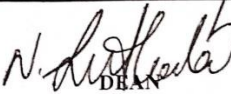
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Industrial Chemistry	B. K. Sharma	2000 (11)	Goel Publishing House, Meerut
2	Environmental Chemistry	A. K. De	2010 (7)	New Age International (P) Ltd, New Delhi.
3	Environmental Science and Biotechnology	A.G. Murugesan, C. Rajakumari	2005 (1)	MJP Publishers, Chennai.

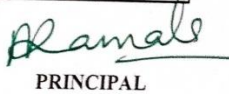
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Water Pollution	P.K. Goel	2006 (2)	New Age International (P) Ltd New Delhi
2	Chemical and Biological Methods for Water Pollution Studies	R. K. Trivedy and P. K. Goel	1986 (5)	Environmental Publications, Karad, India


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER III

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UNCH3B	Course Title: Basics of Food Science
Category: Non Major Elective	Credits: 2 Hrs:2

Objectives:

1. To acquire the basic knowledge of food chemistry and nutrition contents in food
2. To gain knowledge in food additives
3. To know food preservation techniques
4. To aware of various food adulterants
5. To know Quality Standards

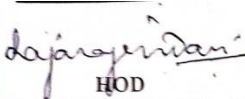
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Introduction Water – nutrient, vital link to life, Food : sources and classification – food as a source of energy - functions and biological importance of carbohydrates, protein, fat, vitamins and minerals types, estimation and deficiency disease- calorific value of food – energy requirements of individuals - balanced diet.	On the completion of the course the student will be able to 1. Identify the nutrients in foods. 2. Explain the specific functions of nutrients in maintaining health. 3. Create awareness among the public about the importance of balanced diet.	6
2	Food Additives Definition, permitted food additives, characteristics and their role: sweeteners, food colourants : natural and artificial antioxidants, stabilizers, flavours, bleaching and maturing agents – leavening agents.	1. Get knowledge about food additives 2. Understand the role of food additives in food 3. Create awareness among the public about food colourants	6
3	Food Preservatives Definition - classification - methods of food preservation- curing, cooling, freezing, boiling, heating, sugaring, pickling, canning, jellying, jugging, burial, fermentation, modern techniques- pasteurisation, vacuum packing, freeze drying, irradiation, pulsed electric field electroporation, modified atmosphere, high pressure food preservation and bio-preservation,	1. Get knowledge of food preservation techniques 2. Explain the methods of food preservation 3. Apply the food preservation techniques in day to day life	6
4	Food Adulteration Definition – types – detection and analysis of adulterants in foods: milk, honey, coriander powder, chilli powder, coffee powder, tea dust, turmeric powder, asafoetida, ghee, oil, meat and pulses.	1. Find the adulterants in food 2. Get knowledge about various adulterants in food. 3. Get knowledge about food poisoning and its prevention.	6
5	Quality Standards Quality control - specification and standards - FA, WHO standards – packing and labeling of foods, Essential Commodities Act - Consumer Protection Act - AGMARK.	1. Get knowledge about Quality Standards 2. Get knowledge about food packing and labeling. 3. Get knowledge about ISI specifications, AGMARK etc.	6

Text Books:

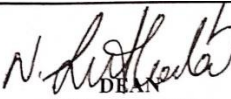
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Food Science	Sri Lakshmi B	2005 (3)	New Age International Publishers, New Delhi.
2	Textbook on Food Chemistry	Swaminathan M	1995 (2)	Printing and Publishing Co, Ltd, Bangalore

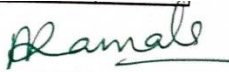
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Food Processing and Preservation	Sivasankar B	2002 (1)	Prentice Hall of India Pvt. Ltd, New Delhi,
2	Food Chemistry	Alex V. Ramani	2009 (1)	MJP Publisher, Chennai


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER IV

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHC41	Course Title: Physical Chemistry-II
Category: Core Paper – 6	Credits: 4 Hrs:4

Objectives:

1.
- To learn about basic concepts and I law ofthermodynamics
2.
- To know the need for II law ofthermodynamics
3.
- To understand the concept of III law ofthermodynamics
4.
- To understand physical and chemical equilibria ofsystems.
5.
- To understand the conceptof adsorption

Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Thermodynamics-I Importance of thermodynamics- limitations of thermodynamics-concepts of a system and surrounding, state variable- extensive and intensive properties, state function and their differential (exact and Inexact), different types of processes- Isothermal, Adiabatic, Isobaric, isochoric, reversible, irreversible andcyclic. Statement, Mathematical expression of first law of thermodynamics- enthalpy and energy of a system-Heat capacity at constant P & V- Correlation between Cp and Cv - calculation of work, heat, internal energy change and enthalpy change for the expansion of an ideal gas under reversible isothermal and adiabatic conditions .Joule Thomson effect – inversiontemperature.	On the completion of the course the student will be able to 1. Describe the basic concepts of Thermodynamics 2. Formulate the first law of thermodynamics for a closed system. 3.Getknowledge about various types of systems andprocesses. 4. Calculate the work and heat for an ideal gas.	12
2	Thermodynamics- II Limitations of the first law of thermodynamics – Spontaneous process- Carnot cycle – different statement of second law of thermodynamics. Entropy: Definition –entropy a state function - Trouton’s rule. -entropy change in reversible and irreversible processes- Clausius inequality- entropy as function of T and V - entropy as a function of T and P - entropy change in isothermal transformation - entropy change accompanying change of phase– entropy of mixing of ideal gases -physical significance of entropy. Free energy – Helmholtz free energy (A) and Gibbs free energy (G) – variation of free energy with T and P – Gibbs - Helmholtz equation – derivation and significance.- Clapeyron equation – applications – Clausius - Clapeyron equation and applications- Problems	1. Get knowledge about thesecond law of thermodynamics and its applications 2. Explain the Second Lawof Thermodynamics 3. IndePTH knowledge and problem solving skill in the calculation of vapour pressure and equilibrium constant.	12
3	Thermodynamics III Partial molar properties – chemical potential – Gibbs - Duhem equation – derivation and significance – variation of chemical potential with temperature and pressure – chemical potential in a system of ideal gases. Concept of fugacity –physical significance of fugacity – activity – activity coefficient - thermodynamics interpretation of law of mass action – derivation of van’t Hoff isotherm and isochore. Thermodynamic derivation of relation between concentration and elevation of boiling point and depression of freezingpoint. Nernst heat theorem – Third law of thermodynamics – statement – determination of absolute entropy of solids and gases - Exception to third law of thermodynamics.	1. Get knowledge on third lawof thermodynamics, Partial molar properties and fugacity. 2. Calculatethe equilibrium constants or standard free energy changes by van’t Hoff isothermandisochore 3. Apply the concepts of third law of thermodynamics in chemical reactions.	12
4	Chemical Equilibrium The law of mass action- Thermodynamic treatment of law of mass action, Relationship between Kp and Kc, Application of Law of mass action to Homogeneous system- dissociation of PCl5 and N2O4, application of Law of mass action to Heterogeneous system-Calcium carbonate – LeChatlier Principle and Physicalequilibria.	1. Understand the basic principlesof chemical equilibrium. 2. Apply the Law of mass action to Homogeneous and Heterogeneous system 3. Understand the LeChatelier’s principle and its applications to chemical and physical equilibria.	12
5	Thermochemistry Enthalpy of combustion- Standard enthalpy of combustion, Bomb calorimeter- Enthalpy of formation- Standard enthalpy of formation – Bond energy and its applications, Enthalpy of neutralization, Hess’s law of heat of summation and its application, Kirchoff’s equation, flame and explosion temperature	1. Understand the principles ofbomb calorimeter. 2. Calculate the bond energy values using enthalpy of formation and enthalpy ofcombustion. 3. Understand the Hess’s law of heat of summation, Kirchoff’s equation,	12

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Principles of Physical Chemistry	Puri, Sharma and Pathania	2019 (48)	Vishal Publishing Co, Jalandhar
2	Text Book of Physical Chemistry	P.L. Soni, O.P. Dharmarha, U.N.Dash	2011 (23)	Sultan Chand & Sons, New Delhi
3	Atkins' Physical Chemistry	Peter Atkin, Julio de Paulo	2010 (9)	Oxford University Press, New Delhi.

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Advanced Physical Chemistry	Gurdeep Raj	2019 (4)	Goel Publishing House, Meerut.
2	Physical Chemistry	G.M.Barrow	2018 (6)	Tata McGraw Hill Education Ltd, New Delhi
3	Thermodynamics	Van Samuel Glasstone D.,	2002 (5)	Eastern Wiley Publication, London, UK.

UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11

SEMESTER IV

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHCL41	Course Title: Inorganic Preparation & Determination of Physical Constants
Category: Core Practical- 4	Credits: 1 Hrs:2

Objectives:

1. To train the students thoroughly in preparing the inorganic complexes.
2. To enable the students to determine the physical constants.

Detailed Syllabus	Course Outcome	Hrs
Inorganic preparations 1. Preparation of Potash alum 2. Preparation of Chrome alum 3. Preparation of Prussian blue 4. Preparation of Sodium ferrioxalate 5. Preparation of Tetrammine copper(II) sulphate 6. Preparation of Potassium trisoxalato ferrate(III) 7. Preparation of Hexathiourea lead(II) nitrate Physical constants: 1. Determination of melting point Naphthalene [80 – 82 ^o C]; Benzoic acid [121 – 122 ^o C]; Urea [132.5 – 133 ^o C]; Salicylic acid [157.5 – 158 ^o C]; m - dinitrobenzene [90 ^o C]; p - dichlorobenzene [52 ^o C] Acetanilide 113.5 – 114 ^o C ; Aspirin 135 ^o C 2. Determination of boiling point Ethanol [78.5 ^o C]; Benzene [80 ^o C]; Cyclohexane [81.4 ^o C]; Toluene [110 ^o C]	On the completion of the course the student will be able to 1. Synthesize inorganic complexes. 2. Get knowledge about the importance of physical constants 3. Check the purity of organic compounds by determining the melting point and boiling point.	2 Hrs/ Week

Internal – 40 marks

20 marks - Regularity (Attendance, Record submission)

20 marks – Average of best (preparation-4) four experiments in regular class work & Average of 4 physical constant determinations External - 60 marks

20 marks – Record (at least four experiments preparation-3 and physical constant determination -2)*

30 marks – Inorganic preparation (5-procedure and preparation-25)

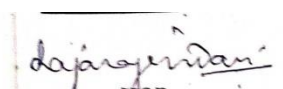
10 marks – physical constant determination *Experiments done in the class alone should be recorded (bonafide record must for the practical examination)

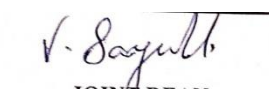
Text Books:

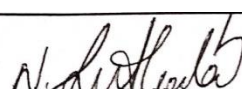
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Practical Chemistry	O.P. Pandey, D.N. Bajpai & S. Giri	2001 (8)	S. Chand & Company Ltd, New Delhi
2	A Book of Practical Chemistry	G. S. Gugale et al.,	2017 (2)	Nirali Prakashan Yogiraj Printers and Binders, Pune.

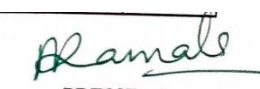
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Vogel's Text Book of Quantitative Chemical Analysis	A.I. Vogel	1997 (5)	Longman Group, Singapore
2	Practical Chemistry	S. Sundaram, P. Krishnan, P. S. Raghavan	2002 (1)	S. Viswanathan (Printers & Publishers) (P) Ltd., Chennai


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER IV

Programme:B.Sc	Subject: CHEMISTRY
Course code: 19UCHA41	Course Title: Advanced Topics in Chemistry
Category: Allied -2*	Credits: 3 Hrs:4

Objectives:

1.
- To learn the basic concepts of polymerchemistry.
2.
- To know the importance of chemistry inindustries.
3.
- To study aboutpetrochemicals
4.
- To know about some common diseases and the drugsused.
5.
- To study about lubricants and some cosmetics in the modernworld

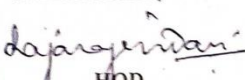
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Polymer Chemistry Introduction - Monomers, Oligomers, Polymers - Classification of polymers-Natural, synthetic and semi-synthetic, linear, branched and cross linked and network- plastics, elastomers, fibres, addition and condensation. Homopolymers and Co-polymers, Thermoplastics and Thermosetting plastics- Preparation, Properties and uses of Thermoplastics -Polyethylene, Polypropylene, polystyrene, PolyVinyl Chloride and nylon. Thermosettingplastics -Phenol formaldehyde and Epoxide resin. Elasomers- buna S, buna-N, neoprene.	On the completion of the course the student will be able to 1. Understand the basic concept of polymerChemistry 2. Tell the classification of polymers 3. Get an idea about thermoplastics and thermosettingplastics	12
2	Fuels, Detergents and Glass Fuel gases – Water gas, Producer gas, L.P.G, Gobar gas and Natural gas. Fertilizers – N.P.K and mixed fertilizers. Soaps and detergents – an elementary idea of soaps and detergents, cleansing action of soaps and detergents, advantages of detergents over soaps. Cement and glass: Portland cement-manufacture only. Manufacture of glass- types and uses borosilicates -photochromic and safetyglass.	1. Understand the importance of fuelsin industry 2. Tell the composition of fertilizers 3. Get knowledge of cement and glass manufacture	12
3	Petro Chemistry Refining of petroleum – Composition and uses of main petroleum fractions – Cracking – Thermal and catalytic cracking – Types of catalytic cracking Advantages of catalytic cracking – Octane number – Antiknock agents – Unleaded petrol – Cetane number – Anti diesel knock agents. Industrial uses of isopropanol, ethylene glycol, glycerin, acetone and phenol.	1. Get the knowledge about petrochemicals 2. Tell about octane number, antiknock agents , unleaded petrol-cetane number 3.Know the Industrial uses of some petrochemicals	12
4	Pharmaceutical Chemistry Common diseases – infective diseases – insect borne – air borne – water borne – hereditary diseases. Nervous disorder – epilepsy— Prevention and treatment. Definition and examples of analgesics, antipyretics, anti-inflammatory, sulpha drugs, antimalarials and antibiotics. Indian medicinal plants – tulsi, neem, keezhanelli – their importance.	1. Aware of some commondiseases. 2. Understand the mechanism of analgesics, antipyretics, sulpha drugs, antimalarials andantibiotics. 3. Apply the Indian medicinal plants for treatment of some commondiseases.	12
5	Applied Chemistry Lubricants-classification-criteria of good lubricating oils-synthetic lubricating oils-poly glycols and poly alkene oxides- greases or semi solid lubricants-examples – Preparation and uses of shampoo, nail polish, tooth paste, boot polish, moth ball, chalk piece, writing inks, gum paste, talcum powder, chalk crayons, agar battis and phenyl	1. Get the knowledge aboutLubricants 2. Develop their skill of making cosmetics and consumerproducts 3. Apply their knowledge in preparing simple cottage industrialcompounds such as candle, ink etc.,	12

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Textbook of Polymers-volume II	M.S.Bhatnagar	2012 (1)	S.Chand Publishing Ltd, New Delhi
2	Textbook of Polymer Science	F. N. Billmeyer	2010 (3)	John Wile Ltd, New Delhi
3	Applied Chemistry	K.Bagavathi Sundari	2006 (1)	MJP Publishers, Chennai

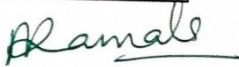
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Medicinal Chemistry	G.R.Chatwal,	2002 (2)	Himalaya Publishing House, NewDelhi.
2	Industrial Chemistry	B. K. Sharma	2000 (11)	Goel Publishing House, Meerut.


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Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHAL41	Course Title: Inorganic Qualitative Analysis
Category: Allied Practical-2*	Credits: 1 Hrs:2

Objectives:

1.
- To enable the student to understand various procedure in saltanalysis.
2.
- To create an awareness on eco-friendly approach in saltanalysis

Detailed Syllabus	Outcome	Hrs
1. Acidicradical Interfering acidic radicals: Borate, Fluoride, Oxalate and Phosphate. 2. Basicradicals Group I : Lead Group II : Copper, Cadmium Group III : Ferric iron Group IV : Cobalt, Nickel Group V :Barium Group VI : Magnesium, Ammonium.	On the completion of the course the student will be able be to 1. Analyzethe acid radicals present in any given inorganicsalt. 2. Eliminate the interfering acidradicals. 3. Identify the basic radical and itsgroup. 4. Analyze the basic radicalssystematically. 5. Develop their qualitative analysis skill of any given inorganicsalt.	2 Hrs/ Week

Internal – 40 marks

20 marks - Regularity (Attendance, Record submission)

20 marks – Average of best four salt mixtures in regular class work External -60 marks

20 marks – Record (atleast 4 salts)*

40 marks – Analysis (20 marks for each radical)

*Experiments done in the class alone should be recorded

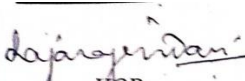
(Students having a bonafide record only should be permitted to appear for the practical examination)

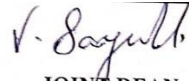
Text Books:

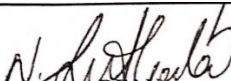
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Practical Chemistry	O.P.Pandey, D.N.Bajpai & S.Giri	2001 (8)	S.Chand& Company Ltd, New Delhi
2	Laboratory Course-I	N. S. Bhandari, K. S. Dhami, K. B. Melkani, Charu C. Pant	2017 (1)	Uttarakhand Open University, Haldwani, Nainital
3	Chemistry: Inorganic Qualitative Analysis in the Laboratory	Clyde Metz, Mary E. Castellion	1980 E-Content ISBN0-12 503354-0	Academic Press, New York, San Francisco, London
4	Vogel’s Text Book of Quantitative Chemical Analysis	A.I. Vogel	1997 (5)	Longman Group, Singapore

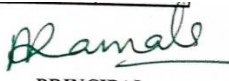
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Vogel’s Qualitative Inorganic Analysis	G. Svehla	2002 (7)	Dorling Kindersley (P) Ltd.,New Delhi
2	A Book of Practical Chemistry	G. S. Gugale et al.,	2017 (2)	Nirali PrakashanYogiraj Printersand Binders, Pune.


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Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHS41	Course Title: Human Health Chemistry
Category: Skill Based Core (SBC)-2	Credits: 4 Hrs:4

Objectives:

1. To have knowledge of first aid and the important rules.
2. To acquire knowledge about the chemicals used in medicine 3. To aware of some common diseases and treatment.
4. To know clinical laboratory test 5. To study the importance of vitamins

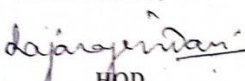
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	First Aid Measures First Aid for accidents-important rules-first aid kit, First aid for cuts, bruises, bleeding, fractures, burns, fainting and poisonous bites. Common poisons-Acid poisoning-antidote, Alkali poisoning-antidote, Poisoning by disinfectant- symptoms- antidote, Alkaloid poisoning-symptoms-antidote, alcohol poisoning-symptoms-antidote, Mercury poisoning-antidote and Salicylate poisoning-antidote.	On the completion of the course the student will be able to 1. Get knowledge about the first aid measure 2. Use the first aid measure whenever need arises 3. Aware about some poisoning-antidote	12
2	Chemicals In Pharmacy Definition and therapeutic uses of the following (an elementary study only) Antiseptics: alum, boric acid Mouth washes: Hydrogen peroxide Antacids: Aluminium hydroxide, Magnesium Hydroxide Analgesics: Aspirin, paracetamol Antibiotics: Penicillins, tetracyclines Haematinics: Ferrous fumarate, ferrous gluconate Laxatives: Epsom salt, milk of magnesia Sedatives: Diazepam	1. Get the knowledge about the chemicals used in medicine 2. Get knowledge about analgesics, antipyretics, sulpha drugs, antimalarials and antibiotics 3. Understand the therapeutic uses of analgesics, antipyretics, sulpha drugs, antimalarials and antibiotics	12
3	Causes and Treatment of Some Common Diseases Insect borne diseases – malaria and filariasis Prevention and treatment. Air borne diseases – diphtheria, whooping cough, influenza, measles, mumps, common cold, tuberculosis and leprosy- Prevention and treatment. Water borne – cholera, typhoid and diarrhoeal diseases -Prevention and treatment. Respiratory disorder – Prevention and treatment of asthma. Nervous disorder – epilepsy—Prevention and treatment - other diseases – Peptic ulcer-treatment.	1. Aware of insect borne, air borne and water borne diseases, prevention and treatment. 2. Get knowledge about Respiratory disorder 3. Understand the nervous disorder.	12
4	Clinical Chemistry Clinical chemistry – Composition of blood – blood grouping – determination of blood groups and matching – blood pressure – hypertension – determination. Determination of glucose in serum – Folin and Wu's method - determination of serum cholesterol – Sackett's method – tests for cholesterol. Estimation of glucose in urine – Diagnostic test for sugar in urine- Benedict's test-Clinistix-strip test, Diagnostic test for salts in urine and serum. Detection of diabetes, detection of anaemia. Estimation and functions of hemoglobin – estimation of red blood cells Normal RBC count in adults.	1. Understand the importance of clinical chemistry 2. Get knowledge about composition of blood and blood grouping 3. Understand the method of Diagnosis	12
5	Vitamins Classification of Vitamins-Sources- deficiency diseases of Vitamins A, B1, B2, B6, B12, C, D, E, and K Therapeutic uses. Treatment of ulcers and skin diseases.	1. Tell the classification and sources of vitamins 2. Aware of deficiency diseases and therapeutic uses of vitamins 3. Aware of ulcers and skin diseases.	12

Text Books:

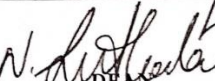
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Medicinal Chemistry	G.R.Chatwal,	2002 (2)	Himalaya Publishing House, New Delhi.
2	A text book of Pharmaceutical Chemistry	Jeyashree Gosh	2014 (5)	S. Chand and Company, New Delhi
3	Applied Chemistry	K.Bagavathi Sundari	2006 (1)	MJP Publishers, Chennai

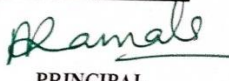
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	An introduction to Medicinal Chemistry	Patrick, Graham L.	2009 (4)	Oxford University Press , New Delhi
2	Biochemistry	U.Sathyanarayana	2002 (2)	Arunabha Sen, Books and Allied (P) Ltd, Kolkata.


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER IV

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UNCH4A	Course Title: Applied Chemistry
Category: Non Major Elective-2	Credits: 2 Hrs:2

Objectives:

1.
- To study about Soaps,Detergents
2.
- To know the importance offertilizer
3.
- To know the basic concept of polymerchemistry.
4.
- Toknowthetherapeuticusesof somedrugs.
5.
- To study lubricants and some cosmetics in the modernworld.

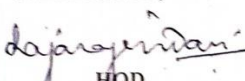
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Soaps and Detergents Soaps – Definition – classification, Saponification of oils and fats. – rawmaterials used in the manufacture of soap – manufacture of toilet soap, Soft soaps, Shaving soaps and creams. cleaning action of soap. ISI specifications, Testing procedures/limits. Detergents – Definition -various types with examples – Mechanism of action of detergents. Comparison of soaps and detergents. Biodegradation – environmental effects. ISI specifications / limits.	On the completion of the course the student will be able to 1. Get the knowledge of Soaps and Detergents 2. Understand the cleaning action of soaps anddetergents 3. Get the knowledge about preparation of soaps	6
2	Fertilizers Definition – characteristics of a good fertilizer, macronutrient – role of nitrogen, potassium and phosphorous, micronutrient in plant growth – natural fertilizers – chemical fertilizers – urea, muriate of potash and triple superphosphate – mixed fertilizers – biofertilizers – advantages of biofertilizers.	1. Understand the importance of micro and macro nutrients for plant growth. 2.Get knowledge about the preparation of chemical fertilizers. 3.Get knowledge about biofertilizers	6
3	Polymers Fibers: Classification –uses of terylene, nylon and orlon. Resins: Natural resins- synthetic resins-type-uses of fevicol, quick fix, araldite, glyptal and Bakelite. Plastics: classification- differences between thermoplasts and thermosets. Advantages of plastics-uses of polythene, PVC, polystyrene, Teflon and thermocol. Rubber: Types-defects in natural rubber-vulcanization-synthetic rubbers- uses of neoprene, thiocol, butyl rubber, silicone rubber and foam rubber.	1. Understand the role of polymer in day to daylife. 2. Get the knowledge about Fibers and Resins. 3. Aware of resins and Rubbers in industry.	6
4	Pharmaceutical Chemistry Definition and therapeutic uses of the following important drugs(anelementary study only) Antiseptics: alum, boric acid, Hydrogen peroxide Antacids: Aluminium hydroxide Analgesics: Aspirin, Paracetamol Haematinics: Ferrous fumerate, ferrous gluconate Laxatives: Epsom salt, milk of magnesia -Sedatives: Diazepam	1. Aware of therapeutic uses of Antiseptics drugs 2. Get the knowledge about chemical composition and uses ofAntacids. 3. Understand theHaematinics.	6
5	Chemicals in Day-to-day Life An outline of the preparation and uses of the following articles. Tooth powder, tooth paste, nail polish, shampoo, writing inks, gum paste, boot polish, talcum powder, chalk crayons, agarbattis, moth balls andphenyl.	1. Prepare simple cottage industrial compounds such as candle, inketc., 2. Develop their skill of making cosmetics and consumerproducts. 3. Understand the role of chemistry in day to day life.	6

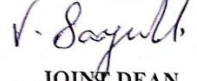
Text Books:

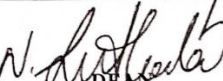
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Industrial Chemistry	B. K. Sharma	2011 (16)	Goel Publishing House, Meerut.
2	Textbook of Polymer Science	F. N. Billmeyer	2010 (3)	John Wile Ltd, New Delhi.
3	A text book of Pharmaceutical Chemistry	Jeyashree Gosh	2014 (5)	S. Chand and Company, New Delhi

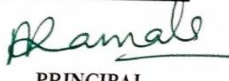
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	An introduction to medicinal Chemistry	Patrick, Graham L.	2009 (4)	New Delhi Oxford University Press
2	Applied Chemistry	K.Bagavathi Sundari	2006 (1)	MJP Publishers, Chennai


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER IV

Programme:B.Sc	Subject: CHEMISTRY
Course code: 19UNCH4B	Course Title: Dairy Chemistry
Category: Non Major Elective-2	Credits: 2 Hrs:2

Objectives:

1. To learn the composition of milk and the factors affecting itscomposition.
2. To understand the processing ofmilk
3. To know the chemistry of cream and butter
4. To study to fermented milkproducts
5. To know the condensed milk and dairydetergents

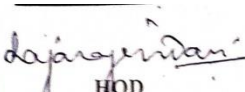
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Properties of Milk Definition, Composition, Milk lipids, Milk proteins, carbohydrates, vitamins and minerals. physicalproperties of milk – colour, odour, acidity, specific gravity, viscosity and conductivity – Recmaged effect. Factors affecting the composition of milk - adulterants, preservatives, and neutralizer - examples and theirdetection.	On the completion of the course the student will be able to 1. Understand the chemical composition of milk. 2. Get knowledge about adulterants 3.Aware of preservatives andneutralizer	6
2	Processing of Milk Destruction of microorganisms in milk – physicochemical changes during processing – boiling, pasteurization – pasteurization types – bottle pasteurization –batch pasteurization – HTST (High Temperature Short Time) – vacuum pasteurization –(UHT) Ultra High Temperature Pasteurisation.	1.Get knowledge about Processing of Milk 2.Understand the pasteurization types. 3.Understand the physicochemical changes during processing of milk.	6
3	Condensed Milk and Dairy Detergents Condensed milk – definition, classification and differences between condensed milk and skim – condensed milk – sanitation - pasteurization – nutritive value of milk – difference between cow milk and bauffalo milk- milk enzymes. Dairy Detergents: Definition-characteristics-classification-washing procedure (modern method) sterilization- chloramin-T and hypochlorite solution.	1. Get the knowledge about condensed milk and dairydetergents. 2. Understand the nutritive value of milk 3.Get an idea about milkenzymes.	6
4	Milk Products-I Milk Products: Cream - definition, classification –butter manufacturing - chemistry of creaming process - physico-chemical properties – separation of cream , estimation of fat in cream , Butter - definition, classification, composition, theory of churning, desibutter, salted butter. Ghee – major constituents – common adulterants added to ghee and their detection – rancidity – definition– prevention – antioxidants and synergists – natural and synthetic.	1. Understand the chemistry of creamand butter 2. Understand the adulterants and their detection. 3. Aware of classification and composition of Butter.	6
5	Milk Products-II Fermented milk products - fermentation of milk - definition and conditions. Ice creams - definition, composition, types, manufacture of ice - cream, stabilizers, emulsifiers, and their role, milk powder - definition, process of makingmilk powder.	1. Understand the fermented milkproducts 2. Get knowledge about the composition of IceCreams. 3. Get knowledge about process ofmaking milk powder.	6

Text Books:

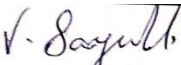
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Applied Chemistry	K.Bagavathi Sundari	2006 (1)	MJP Publishers Chennai
2	Technology of dairy products	Parekh	2013	IBDC Publishers, Lucknow.

Reference Books:

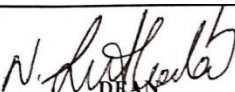
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Indian Dairy Products	Rangappa and Acharya	1975 (2)	K.T. Asia Publishing House, Bombay, India.
2	Outlines of Dairy Technology	Sukumar De	2001 (1)	Oxford University Press, NewDelhi.



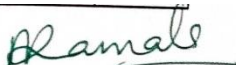
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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER V

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHC51	Course Title: Organic Chemistry- III
Category: Core Paper -7	Credits: 5 Hrs:6

Objectives:

- 1. To know about the various types of dyes and heteronuclear hydrocarbons.
- 2. To understand the organic reaction mechanisms.
- 3. To understand the stereochemistry of organic compounds
- 4. To study about the conformational analysis of acyclic and cycloalkanes.
- 5. To acquire knowledge about heterocyclic compounds.

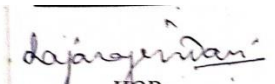
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Dyes & Polynuclear Hydrocarbons Dyes - colour and constitution - chromophore -auxochrome theory, VB theory of colour. classification of dyes- Direct or substantive dyes, modern dyes classification based on chemical structure preparation and uses of azo dyes - methyl orange, triphenyl methane dyes -malachite green, indigo dyes - Indigotin, anthraquinone dyes - alizarin, phthalein dyes –Phenolphthalein- Preparation, properties and structure of Naphthalene & Anthracene	On the completion of the course the student will be able to 1. Understand the theory of colors and constitution. 2. Get knowledge about the preparation of dyes. 3. Get knowledge about the synthesis and structure of Naphthalene and Anthracene.	15
2	Molecular Rearrangements Rearrangement to electron-deficient carbon – 1,2 shift (Wagner-Meerwein rearrangement, pinacol rearrangement, benzil-benzilic acid rearrangement). Aromatic rearrangements from oxygen to ring carbon (Fries rearrangement, Claisen rearrangement and benzidine rearrangement). Rearrangement to electron-deficient nitrogen (Beckmann rearrangement, Schmidt rearrangement, Hofmann rearrangement, Curtius rearrangement).	1. Understand the mechanism of some important molecular rearrangements. 2. Write the mechanism of organic reactions. 3. Predict the product of organic reactions.	15
3	Stereochemistry Stereoisomerism – nomenclature of geometrical isomers – cis and trans isomerism – E and Z nomenclature – determination of configuration of the geometrical isomers – optical isomerism. Conditions for optical activity – symmetry elements – chirality – definition of enantiomers, diastereomers, racemic mixture and meso compounds – optical isomerism of lactic acid, malic acid and tartaric acid. Fischer projection – Sawhorse projection- Newmann projection–configuration – specification configuration– D and L notations –R and S notations – resolution – racemisation –Walden inversion and asymmetric synthesis.	1. Tell the conditions for optical activity and basic concept of optical isomerism 2. Draw the conformations of alkanes and interconversion of Sawhorse, Newmann and perspective representations 3. Assign R/S and E/Z configuration.	15
4	Conformational Analysis of acyclic and Cycloalkanes Conformational study of ethane, n-butane and 1,2-dichloroethane, spectral evidence for the preferred conformations, relative stability of cycloalkanes from cyclopropane up to cyclooctane - Bayer's strain theory – limitations and its modification. Conformational analysis of cyclohexane, cyclohexanone and decalins.	1. Understand the relative stability of cycloalkanes 2. Explain the conformations of cycloalkanes and the chemistry of alkanes. 3. Get knowledge about Bayer's strain theory.	15
5	Heterocyclic Compounds Molecular orbital picture and aromatic characteristics of pyrrole, furan, thiophene and pyridine. Comparison of basicity of pyridine, piperidine and pyrrole. Methods of synthesis and chemical reactions with particular emphasis on the mechanism of electrophilic substitution and mechanism of nucleophilic substitution reaction in pyridine derivatives. Preparation and reactions of indole, quinoline and isoquinoline with special reference to Fisher indole synthesis, Skraup synthesis and Bischler-Napieralski synthesis, mechanism of electrophilic substitution reactions of indole, quinoline and isoquinoline.	1. Write the names of heterocyclic compounds. 2. Get knowledge of preparing some heterocyclic compounds. 3. Compare the basicity of pyridine, piperidine and pyrrole.	15

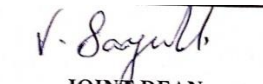
Text Books:

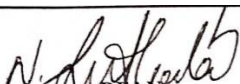
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	A Text Book of Organic Chemistry	K.S. Tewari, N.K. Vishil, S.N. Mehotra	2001 (1)	Vikas Publishing House Pvt Ltd., New Delhi
2	Solved Problems in Reaction Mechanism	Ahluwalia, Parashas	2010 (4)	Narosa Publishing House, New Delhi.
3	Organic Chemistry	Bahl and Arun Bahl	2006 (18)	S. Chand and Sons, New Delhi

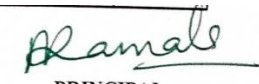
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Stereo Chemistry Confirmation and Mechanism	P.S.Kalsi	2006 (6)	New age International (P) Ltd New Delhi
2	Organic Chemistry	Morrison and Boyd	2011 (7)	Pearson Education (P), New Delhi


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER V

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHC52	Course Title: Physical Chemistry –III
Category: Core Paper- 8	Credits: 5 Hrs:6

Objectives:

1. To understand the basic concept of Electrochemistry
2. To know the working principle of various electrode.
3. To understand the applications of EMF Measurements
4. To know various kinds of solutions and liquid crystals.
5. To gain basic knowledge of Phase rule

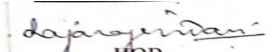
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Electrolytic Conductance Metallic and electrolytic conductance – Definitions of specific, equivalent and molar conductances – Relations between them – measurement of conductance and cell constant. Variation of conductance with dilution – Qualitative explanation – Strong and weak electrolytes. Migration of ions – transport number – determination by Hittorf and moving boundary methods – Kohlrausch’s law – applications – calculation of equivalent conductance for weak electrolytes and determination of transport number. Ionic mobilities and Ionic conductances. Diffusion and ionic mobility- molar ionic conductance and viscosity- Walden rule- Applications of conductance measurements – Degree of dissociation of weak electrolytes – Determination of Ionic product of water – Determination of solubility of sparingly soluble salts – conductometric titrations- Theory of strong electrolytes – Debye – Huckel – Onsager theory- verification of Onsager equation – Wein and Debye –Falkenhagen effect.	On the completion of the course the student will be able to 1. Differentiate between Metallic and electrolytic conductance 2. Calculate the solubility of sparingly soluble salts. 3. Understand the principle of conductometric titration and find the concentration of unknown solution.	15
2	Electrochemical Cells Electrochemical series – single electrodes and electrode potentials – oxidation and reduction potentials. Thermodynamics and electromotive forces: relation between chemical and electrical energies – calculation of different values of ΔG – calculation of emf – Nernst equations for both oxidation and reduction- standard electrode potential and its characteristics – types of electrodes: metal- metal ion – Gas – metal-insoluble salt – redox– glass electrode. Electrochemical cells: chemical cells-definition – cell reaction and representation of electrodes and cells, emf of cells – conventions regarding signs of emf calculations of cell emf with the aid of Nernst equation – experimental determination of emf of cells. Measurements of single electrode potentials – calculations of $\Delta G, \Delta H, \Delta S$ and equilibrium constant from EMF	1. Get knowledge about Nernst distribution law and its applications. 2. Calculate $\Delta G, \Delta H, \Delta S$ and equilibrium constant from EMF data 3. Tell the components of various electrode and understand the working principle of various electrode.	15
3	Applications of EMF Measurements Determination of solubility product of a sparingly soluble salts– determination of pH using hydrogen electrode, glass electrode, calomel electrode and quinhydrone electrode – determination of degree of hydrolysis – determination of valency of the ion – potentiometric titrations-acid-base, redox, precipitation titrations – determination of transport number. Commercial cells-primary and secondary cells-Weston-cadmium cell and lead storage cells, Fuel Cells: H_2 O_2 fuel cells-over voltage, decomposition potential-hydrogen over voltage-theories of electrolyte-separation of metals-electrochemical principle of corrosion and passivity. Elementary idea of polarography.	1. Determine the pH of the solution. 2. Apply the principle of potentiometric titration to calculate the concentration of unknown solution 3. Understand the electrochemical principle of corrosion and passivity	15
4	Solutions Kinds of solutions – methods for expressing concentration – Molarity, molality, mole fraction, normality, mass fraction, parts per million -solutions of gases in liquid -Solubility of gases in liquids – Henry’s law – statement and limitations. Solutions of liquid in liquid– Binary liquid mixture - Ideal and non ideal solutions – Raoult’s law. - deviation from ideal behavior – pressure – composition and temperature – Composition diagrams for completely miscible binary solutions- Fractional distillation –Azeotropic distillation–nature of azeotropic mixtures- partially miscible liquids–consolute temperature- critical solution temperature- system with upper CST, lower CST and upper and lower CST –Liquid crystals, Nematic, Smectic and cholesteric types and their	1. Calculate molarity, molality, mole fraction, normality, mass fraction, parts per million. 2. Understand critical solution temperature 3. Tell the types and applications of liquid crystals	15
5	Phase Equilibria Phase rule - phase, component, degree of freedom - thermodynamic derivation of phase rule, One-component system: Phase diagrams of Water and sulphur systems. Two component system: (i) Simple eutectic: Lead-silver system and potassium iodide-water system. (ii) Formation of compound with congruent melting point: Magnesium – zinc system and ferric chloride – water system. Distribution Law- Statement and thermodynamic derivation- association of the solute in one of the solvents- dissociation of the solute in one of the solvents- applications of the distribution law-solvent extraction.	1. Understand the concept of phase rule. 2. Find number of phase, component, degree of freedom. 3. Apply phase rule and draw phase diagrams for one, and two component systems.	15

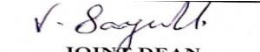
Text Books:

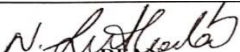
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Principles of Physical Chemistry	Puri, Sharma and Pathania	2019 (48)	Vishal Publishing Co, Jalandhar
2	Text Book of Physical Chemistry	P.L.Soni	2011 (23)	Sultan Chand & Company, New Delhi
3	Atkins’ Physical Chemistry	Peter Atkins	2015 (10)	Oxford University Press, New York

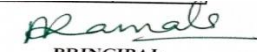
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Advanced Physical Chemistry	Gurdeep Raj	2008	Goel Publishing House, Meerut
2	Physical Chemistry	G.M.Barrow	1994 (5)	Tata McGraw Hill, New Delhi


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER V

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHE51	Course Title: Polymer Chemistry
Category: Core Elective-1	Credits: 4 Hrs: 6

Objectives:

1.
- To know the concept of polymerization and types of polymers
2.
- To understand the characteristics of polymers
3.
- To acquire knowledge about the polymerization techniques and polymer processing
4.
- To know the chemistry of individual polymers
5.
- To have an idea about the recent advances in polymer sciences

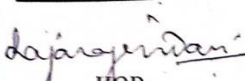
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Introduction to Polymers Monomers, Oligomers, Polymers and their characteristics Classification of polymers : Natural synthetic, linear, cross linked and network; plastics, elastomers, fibres, Homopolymers and Co-polymers Bonding in polymers : Primary and secondary bond forces in polymers; cohesive energy and decomposition of polymers. Chemistry of polymerization: Chain polymerization, free radical, ionic, coordination, step polymerization, polyaddition and polycondensation, miscellaneous ring opening and group transfer polymerizations. Polycondensation-non catalysed, acid catalysed polymerization, Step growth polymers, Degrees of polymerization.	On the completion of the course the student will be able to 1. Understand the basic concept of polymer chemistry 2. Classify the polymer based upon structure, types of monomer used and thermal response. 3. Explain step-growth and chain polymerization, with respect to mechanism and kinetics.	12
2	Characteristics of Polymers Glass transition temperature (Tg) - definition – Factors affecting Tg – relationships between Tg and molecular weight and melting point. Importance of Tg. Determination of Molecular mass of polymers: Number Average molecular mass (Mn) and Weight average molecular mass (Mw) of polymers and determination by (i) viscosity (ii) Light scattering method (iii) Gel Permeation Chromatography (iv) Osmometry and ultracentrifuging. Chemical reaction : hydrolysis - hydrogenation - addition - substitution – cross-linking, vulcanisation and cyclisation reactions. Polymer degradation - basic idea of thermal, photo and oxidative degradation of polymers.	1. Tell the factors which affect the glass transition temperature of polymers. 2. Determine the molecular mass of the polymers. 3. Understand the chemical reactions and degradation of polymers.	12
3	Polymerisation Techniques & Processing Bulk, Solution, Emulsion, Suspension, Melt polycondensation, solution polycondensation, interfacial and gas phase polymerization. Polymer Processing : Polymer Additives: Fillers, Plasticizers antioxidants and thermal stabilizers fire retardants and colourants. Processing Techniques: Calendaring, die casting, compression moulding, injection moulding, blow moulding, extrusion moulding and reinforcing. Film casting, Thermoforming, Foaming.	1. Prepare polymers using various techniques. 2. Identify the polymer processing methods. 3. Understand the importance of polymer additives	12
4	Chemistry of Some Commercial Polymers Raw material, preparation, fibre forming polymers, elastomeric material. Thermoplastics: Polyethylene, Polypropylene, polystyrene, Polyacrylonitrile, Poly Vinyl Chloride, Poly tetrafluoro ethylene, nylon and polyester. Thermosetting Plastics: Phenol formaldehyde urea formaldehyde resin, melamine formaldehyde, epoxy resin and polycarbonate. Elastomers : Natural rubber and synthetic rubber - Buna - N, Buna-S and neoprene.	1. Understand the chemistry of some commercial polymers. 2. Identify thermoplastic and thermosetting plastics. 3. Get knowledge about elastomers.	12
5	Advances in Polymer Biopolymers - Biomedical polymers - contact lens, dental polymers, artificial heart, kidney, skin and blood cells - High temperature and fire resistant polymers - silicones - conducting polymers - (elementary idea) - polysulphur nitrile, polyphenylene, polypyrrole and polyacetylene. Polymer industry in India.	1. Get knowledge about industrial applications of biopolymers and biopolymer marketing. 2. Understand the importance of silicones. 3. Get an idea about conducting polymers.	12

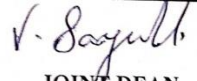
Text Books:

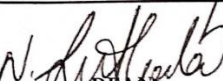
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Textbook of Polymers-volume II	M.S. Bhatnagar	2004 (1)	S.Chand Publishing ltd, New Delhi.
2	Textbook of Polymer Science	F. N. Billmeyer	2010 (3)	John Wile ltd, New Delhi

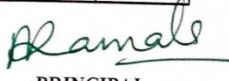
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Industrial Chemistry	B. K. Sharma	2011 (16)	Goel Publishing House, Meerut.
3	Applied Chemistry	K.Bagavathi Sundari	2006 (1)	MJP Publishers, Chennai


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER V

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHE52	Course Title: Bioinorganic Chemistry
Category: Core Elective-1	Credits: 4 Hrs:6

Objectives:

1.
- To study the significance of trace elements in biologicalsystem.
2.
- To study the biological role of electron transferproteins
3.
- To study the biological activities of metalloenzymes.
4.
- Tostudytheapplicationsoftherapeuticchelatingagents.
5.
- To study thefundamentals of supramolecular chemistry.

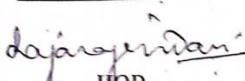
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Metal ions in biology Metal ions in biology- Essential and trace elements in biological system – biological importance and toxicity of elements such as Fe , Cu , Zn , Co , Mo , W , V , Mn , and Cr in biological system and their vital role in the active site- Ion transport mechanism in cell membrane – Na and K pumps- Ionophores.	On the completion of the course the student will be able to 1. Tell the importance of Metal ions in biologicalsystem. 2. Aware of biological importanceand toxicity of elements. 3. UnderstandIon transport mechanism in cellmembrane	12
2	Metallo porphyrins Chlorophyll – photosynthetic electron transport sequence – biological electron carriers : iron-sulphur proteins-ferredoxin, rubridoxin and cytochromes , cytochromes and blue copper proteins – Myoglobin and Hemoglobin: Structure of the ProstheticGroup – Mechanism for Reversible Binding of Dioxygen and Cooperativity of Oxygen Binding – Behavior of Dioxygen Bound to Metals – Structure of the Active Site in Myoglobin and Hemoglobin – Binding of CO to Myoglobin,Hemoglobin. Vitamin B12 and cytochrome P450-mechanism of action	1. Draw the structure ofChlorophyll, hemoglobin and myoglobin. 2. Explain the functions of Chlorophyll, haemoglobin and myoglobin. 3.Understandthe mechanism of Vitamin B12 and cytochromeP450.	12
3	Metallo enzymes Occurrence – Structure – Function – Discussion of Specific Enzymes: Role of Zinc in enzyme chemistry-Zinc finger, Zinc twist and zinc cluster Structure and functions of Metallo proteins and enzymes - superoxide dismutase, Hemocyanin. Carbonic anhydrase, carboxypeptidase A, Catalase, LADH, and Peroxidase. Enzyme Nitrogenase: Iron–Sulfur Clusters – Fe–Protein Structure – Detailed Mechanistic Studies.	1. Understand the role of Zinc in enzyme chemistry. 2. Draw the structure of Metallo proteins and enzymes. 3. Explain the functions of M etallo proteins andenzymes.	12
4	Metals and Health Application of therapeutic chelating agents- Metal-based drugs cis-platin, carboplatin, platinum anti-cancer drugs, gadolinium MRI contrast agents, Gold and arthritic agents – auranofin, solganol, myochristin, Toxicity of metals–Cd, Hg and Cr-bio metyhylation of mercury	1. Aware of toxicity ofmetals. 2. Get an idea about Metal-based drugs. 3.Getknowledge about anti-cancerdrugs.	12
5	Supramolecular chemistry Concepts of supramolecular chemistry. – Host-Guest concept- Various types of non-covalent interactions. Hydrogen bonds, C-H...X interactions, Halogen bonds. π – π interactions, non – bonded interactions. Various types of molecular recognition- Cations, Anions and Neutral guests – Supramolecular Devices and Sensors: Various types of supramolecular devices – anoverview	1. Understand the concepts of supramolecular chemistry. 2. Explain various types of bond interactions. 3. Get an idea about supramolecular devices andsensors.	12

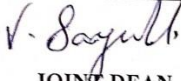
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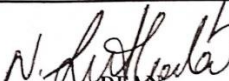
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Basic Inorganic Chemistry	Cotton, F.A., Wilkinson, G., & Gaus, P.L.	2011 (3)	Wiley India, (P) Ltd., New Delhi
2	Inorganic Chemistry, Principles of Structure and Reactivity	Huheey, J. E.; Keiter, E.A. & Keiter, R.L.	2014 (4)	Dorling Kindersley (India) Pvt. Ltd, New Delhi

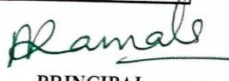
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Concise Inorganic Chemistry	Lee, J.D.	2008 (5)	John Wiley and Sons, New Delhi
2	Bioinorganic Chemistry,	Asim K. Das,	2007	Books and allied (P) Ltd.


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Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHCEP51	Course Title: Chemistry for Competitive Examinations& Project
Category:Skill Based Elective	Credits: 6 Hrs:6

Chemistry and General Aptitude for Competitive Examinations.

Objectives:

1.
- To study the periodic properties, hybridization and geometry of molecules
2.
- To study the basic principles and the methods of preparation, properties and uses of organic compounds.
3.
- To study about the atomic structure and states of matter.
4.
- To recall basic/advanced chemistry to prepare for Entrance examination for higher studies.
5.
- To develop aptitude, mental ability and reasoning ability in order to prepare for various competitive exams like TNPSC and banking sector etc.

Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Inorganic Chemistry 1. Periodic table of elements: periodic classification of elements, Periodic properties, Methods of isolation and Purification of elements 2. Chemical Bonding and Molecular structure: types of bonding, VSEPR model and shapes of molecules, Hybridisation, dipole moment. 3. Acids and Bases – Acids – bases – theories of acids and bases – pH. Hydrogen: Hydrogen-Hydrides-Water- Hydrogen peroxide 4. Lighter, Heavier metals: Alkali metals, Alkali earth metals and heavier metals- some of their compounds 5. Chemistry of main block elements: General idea of elements- Groups from 1 to 18- Their properties and general trends. d and f block elements: Electronic configuration, Characteristics and general properties.	On the completion of the course the student will be able to 1.Explain the periodic properties 2.Find the hybridization and geometry of molecules. 3.Write the electronic configuration & Explain the general properties of d and f block elements	6
2	Organic Chemistry 1. Some basic principles: Tetra covalency of Carbon- IUPAC nomenclature- Functional groups 2. Reaction intermediates: Carbocation, Carbanion, Free radicals- Carbenes. 3. Chemistry of Alcohols Phenols and Ethers: Methods of Preparation- Physical, Chemical properties and uses- some commercially important compounds 4. Chemistry of Aldehydes, Ketones and Carboxylic acids: Methods of preparation- Physical, Chemical properties and uses- some commercially important compounds 5. Biomolecules: Carbohydrates, Proteins, Vitamins Fats, Amino acids	1. Write the IUPAC name of organic molecule 2. Understand the methods of preparation, properties and uses of organic compounds 3. Get knowledge about reaction intermediates:	6
3	Physical Chemistry 1. Atomic Structure: Fundamental particles, Bohr’s theory of hydrogen like atoms- Uncertainty principle- Quantum numbers- shapes of orbitals- Hund’s rule and Pauli’s exclusion principle 2. States of matter: Gaseous state, Measurable Properties- Gas laws and ideal gas equation Solid State: Solid state- classification- defects. 3. Laws of Thermodynamics: Some basic concept- Intensive and Extensive properties-Laws. 4. Solutions: Various concentration units- Solubilities of gases- Vapour pressure – Raoult’s law- Colligative properties- Abnormal molar mass. 5. Surface Chemistry: Adsorption- catalysis- colloids- their preparation, properties and types- Emulsions.	1. Get knowledge about atomic structure. 2. Understand the concept of solid State chemistry. 3. Understand the basic concept and Laws of Thermodynamics and surface chemistry.	6

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Objective Chemistry	Dr.R.K.Gupta	2002 (1)	Cyber Tech Publication, New Delhi
2	Objective Chemistry	R.N.Sarin	-	Sultan Chand & Sons, New Delhi

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Manual for TNPSC Examinations	M. Karthikeyan	2016 (2)	McGraw Hill Education, New Delhi.
2	General Chemistry	Ebbing, Gammon	2007 (9)	Houghton Mifflin Company, New York

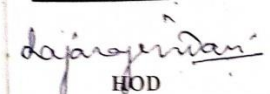
Project (3 hrs)

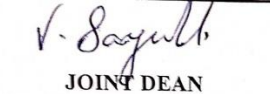
Objectives:

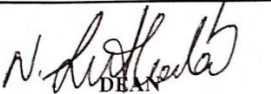
At the end of the semester the students should be able to:

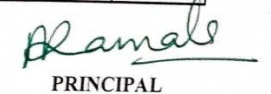
1.
- Identify the potential areas of research in his/her field;
2.
- Collect data from various sources including the internet, analyze them, make new connections and link them to life.
3.
- Read and write originally and usefully.

Course Outcome
Use modern equipment’s and instruments Synthesize new compounds Characterize materials Interpret spectra Work as team


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER V

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHCL51	Course Title: Organic Analysis&Organic Estimation
Category: Core Practical –5	Credits: 2 Hrs:4

Objectives:

1.
- To enable the students to understand the various procedures in organic analysis and organicpreparation
2.
- To create an awareness on micro scale experiments in organic chemistrypractical

Detailed Syllabus	Course Outcome	Hrs
Organic analysis Qualitative analysis of the given organic compound a. Test for aliphatic and aromatic nature ofsubstances b. Test for saturation andunsaturation c. Special element (N andS) d. Identification of functional groups (carboxylic acids, phenols, aldehydes, ketones, esters, amines, amides, anilides, nitro compounds andcarbohydrates) e. Preparation of solid derivative to confirm the presence of functionalgroup Organic Estimation 1. Estimation of Phenol (Brominationmethod) 2. Estimatiom of Aniline (Brominationmethod)	On the completion of the course the student will be able to 1. Explain the analytical procedure to identify the given organiccompounds. 2. Analyse systematically and report the functional group present in the given organic compound. 3. Identify the saturation/unsaturation and aliphatic/aromatic nature of given organic compounds. 4. Analyse the elements (other than C, H and O) present in the givencompound. 5. Detect the various functionalgroups. 6. Prepare the derivatives for allfunctional groups. 7. Estimate Phenol andaniline.	4 Hrs/ Week

Internal – 40 marks 20 marks - Regularity

20 marks – Average of best four analysis& two estimation in regular class work External -60 marks

10 marks – Record (atleast four analysis & two estimation)*

25 marks- Organic Analysis 10 marks - Procedure

15 marks – Estimation

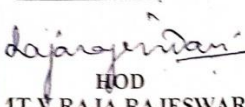
*Experiments done in the class alone should be recorded (Students having a bonafide record only should be permitted to appear for the practical examination)

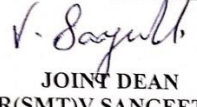
Text Books:

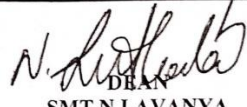
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Practical Chemistry	O.P.Pandey, D.N.Bajpai & S.Giri	2001 (8)	S.Chand & Company Ltd, New Delhi
2	Laboratory Course-I	N. S. Bhandari, K. S. Dhami, K. B. Melkani, Charu C.Pant	2017 (1)	Uttarakhand Open University, Haldwani, Nainital

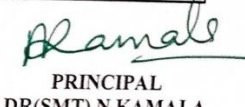
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Vogel’s text book of Quantitative Chemical Analysis	A.I. Vogel	1997 (5)	Longman Group, Singapore
2	Practical Chemistry	S.Sundaram, P.Ksishnan, P.S.Raghavan	2007 (1)	S.Viswanathan (Printers & Publishers), (P) Ltd., Chennai.


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER VI

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHC61	Course Title: Inorganic Chemistry-III
Category: Core Paper- 9	Credits: 4 Hrs:5

Objectives:

1.
- To study the theories in coordinationchemistry.
2.
- To acquire basic knowledge about splittingof d orbital 3.To understandlabile and inertcomplexes.
4.
- To study thechemistry of metal carbonyls.
5.
- To understand the role of metal ions in biologicalsystems.

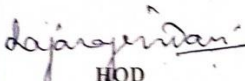
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Coordination Chemistry-I Introduction: IUPAC nomenclature, Ligands- monodentate, bidentate, and polydentate ligands; coordination sphere; coordination number; nomenclature of mononuclear and dinuclear complexes. Structural and stereoisomerism in tetrahedral, square planar and octahedral complexes. Werner’s coordination theory-Salient features and Experimental verification. Sidgwick’s electronic concept of coordinate bond in coordination compounds. Valance Bond theory – applications of valance bond theory to tetrahedral, square planar and octahedral complexes- Merits and limitations of VB theory.	On the completion of the course the student will be able to 1. Name and write the structure of the inorganiccomplexes. 2. Get knowledge about the stereoisomerism ofcomplexes. 3. Apply the VB theory to find the geometry of inorganiccomplexes.	15
2	Coordination Chemistry-II Crystal field theory - splitting of d-orbitals in octahedral and tetrahedral complexes - factors affecting the magnitude of crystal field splitting - effects of crystal field splitting - spectrochemical series - applications of CFT - magnetic properties and spectra of transition metal complexes - crystal field stabilization energy and their uses - limitations of CFT - effective atomic number rule - stability of complexes - step-wise and overall stability constants - factors affecting the stability of complexes - determination of stability constants.	1.Understand the Splitting of d orbital in octahedral and tetrahedral geometry. 2.Findthe stability ofcomplexes. 3.Calculate the crystal field stabilizationenergy.	15
3	Coordination Chemistry –III Labile and inert complexes - ligand substitution reactions in octahedral complexes: aquation, base hydrolysis and anation reactions - substitution reactions in square planner complexes - Trans effect - theories of trans effect - mechanism of substitution reactions - redox reactions: inner-sphere and outer-sphere electron transfer reactions.	1. Get knowledge about labileand inert complexes. 2. Understand the mechanism of substitution reactions in octahedral and square plannercomplexes. 3. Understand the concept oftrans effect.	15
4	Metal Carbonyls Classification – General methods of preparation, physical and chemical properties. Bonding and structure of metal carbonyls – EAN rule. Structures of metal carbonyls of Fe, Co, Ni, and Mn– [Ni(CO) ₄ , Fe(CO) ₅ , Cr(CO) ₆ , Mn ₂ (CO) ₁₀ , Co ₂ (CO) ₈ , Fe ₂ (CO) ₉] – Distinction of bridged and terminal carbonyl using IR spectra.	1. Get knowledge about themetal carbonyls. 2. Draw the structure of metal carbonyls. 3. Apply the EAN rule to find the stability of metalcomplexes.	15
5	Bio-Inorganic Chemistry Essential elements in biological systems – bulk, trace and ultra-trace elements in biosystems – Metallo biomolecules – classification – Structure and functions of - hemoglobin, myoglobin, Chlorophyll, Vitamin B ₁₂ . Metallo-Enzymes- Structure, reaction path and functions of carbonic anhydrase, carboxy peptidase, Cytochrome P-450. Antibiotic- Ionophores, Na ⁺ and K ⁺ pumps and its functions. Metals and metal complexes in medicine [Platinum complexes,Copper complexes, Gold complexes].	1. Understand the essentialelements in biological systems. 2. Draw thestructure of hemoglobin, myoglobin, Chlorophyll, VitaminB ₁₂ 3. Explain the role metal complexes inmedicine.	15

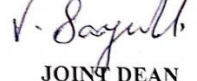
Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Concise Coordination Chemistry	R.Gopalan, V.Ramalingam	2009	Vikas Publishing House (p) Ltd, New Delhi.
2	Principles of Inorganic Chemistry	B. R. Puri, L. R. Sharma, K. C. Kalia	2016 (1)	Vishal Publishing & Co, Jalandhar
3	Inorganic Chemistry	P.L.Soni	2017 (20)	Sultan Chand & Company, New Delhi.

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Advanced Inorganic Chemistry	F. A. Cotton, G. Wilkinson, C. Murillo and M. Bochman	2015 (6)	Wiley India, New Delhi.
2	Inorganic Chemistry	James E. Huheey, Elien A. Keiter and Richard L. Keiter	2014 (4)	Harper College Publisher, NewYork.


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER VI

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHC62	Course Title: Organic Chemistry- IV
Category: Core Paper-10	Credits: 4 Hrs:5

Objectives:

1. To study the classification and structureof carbohydrates.
2. To study the structural elucidation and biological properties of alkaloids 3.Tostudythestructuralelucidationandsynthesisofterpenoids.
- 4.To study the biological importance of vitamins and hormones. 5.To study UV, IR, NMR, and Mass spectra of organic molecules.

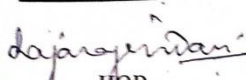
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Carbohydrates Classification-Monosaccharides- constitution of glucose and fructose. Reactions of glucose and fructose – Osazone formation, Mutarotation and its mechanism, cyclic structure, pyranose and furanose forms. Epimerisation-Chain lengthening and shortening of aldoses. Interconversions of aldoses and ketoses and vice versa. Disaccharides- sucrose- reactions and structure. Manufacture of sucrose- Polysaccharides – starch and cellulose (elucidation of structure not necessary).Applications of cellulose derivative	On the completion of the course the student will be able to 1. Get knowledge about the classification and structure of carbohydrates 2. Understand the chemicalreactions of carbohydrates 3. Understand the interconversions of aldoses andketoses	15
2	Alkaloids Introduction and functions of alkaloids. Occurrence, classification, purification and isolation Structural elucidation, synthesis and biological properties of coniine, piperine and nicotine. Structure of quinine and atropine.	1. Explain the Occurrence, classification, isolation and functions ofalkaloids 2. Write the structural elucidation of alkaloids 3. Get knowledge about the synthesis of alkaloids	15
3	Terpenoids Introduction, Isoprene rule General methods of determining structure. Structure and synthesis of citral, menthol and camphor. Carotenoids: Introduction, geometrical isomerism, Structure determination and synthesis of beta-carotene and vitamin-A	1. Explain the general methodsof determining the structure of terpenoids 2. Get knowledge about the synthesise of citral, menthol and camphor 3. Get knowledge aboutcarotenoids	15
4	Vitamins and Hormones: Nomenclature of Vitamins –Biological functions of vitamins: Vitamin A (Retinol), Vitamin B2 (Riboflavin), Vitamin B6 (Pyridoxine), Vitamin B12, Vitamin C, D and E (Structural elucidation & synthesis notrequired). Hormones: Biological importance of thyroxine, testosterone and progesterone. Chemotherapy: Definition, preparations and application of the following drugs: Sulpha drugs, sulphanilamide, sulphapyridine and sulphathiazole.	1. Understand the biological importance ofVitaminsand Hormones 2. Get basic knowledge about Chemotherapy 3. Get knowledge about the preparation and applications of Sulpha drugs, sulphanilamide, sulphapyridine andsulphathiazole	15
5	Organic Spectroscopy UV-Visible Spectroscopy: Introduction, electronic transition, effect of conjugation, concept of chromophore and auxochrome, bathochromic, hypsochromic, hyperchromic and hypochromic shifts. UV-Vis spectra of conjugated dienes and solvent effect. Colour and light absorption. IR Spectroscopy: Molecular vibrations – Finger print region- Identification of functional groups and interpretation of IRspectra. NMR Spectroscopy: NMR phenomenon – chemical shift – factors influencing chemical shift (electro negativity, anisotropic effect), spin-spin coupling – application of NMR to simple molecules like ethyl alcohol, ethyl bromide, acetaldehyde, 1,1,2-tribromoethane and toluene. Simple problems involving UV, IR and NMRdata.	1. Understand thevarious spectroscopic techniques 2. Explain the basic principles and find the structure of molecule with the help of UV, IR and NMR spectraldata 3. Apply the spectral techniques to analyse organicmolecules.	15

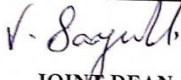
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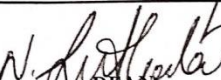
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	A text Book of Organic Chemistry	Bahl and Arun Bahl	2012 (21)	S. Chand and Sons, New Delhi
2	A text book of organic Chemistry	K.S. Tewari, N.K. Vishil, S.N. Mehotra	2001 (1)	Vikas Publishing House Pvt Ltd., New Delhi
3	Elementary Organic Spectroscopy	Y.R. Sharma	2010 (4)	S.Chand & Company Ltd, New Delhi

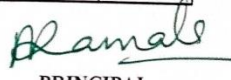
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Organic Chemistry: Natural Products	O.P. Agarwal	2014 (43)	Agarwal, Krishan Prakashan Meerut.
2	Organic Spectroscopy	William Kemp	2010 (3)	Palgrave Macmillan, New York.


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER VI

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHC63	Course Title: Physical Chemistry – IV
Category: Core Paper- 11	Credits: 4 Hrs:5

Objectives:

- 1. To study the kinetics of reactions.
- 2. To understand the basic concept of Molecular Spectroscopy
- 3. To understand the basic concept of Raman and IR spectroscopy.
- 4. To find the structure of molecules with the help of NMR and Mass spectroscopy.
- 5. To study the fundamentals of group theory.

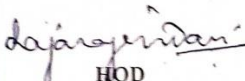
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Chemical Kinetics Rate of reaction-Measuring rates of reaction-expressing reaction rates- factors influencing rate-rate constant-Rate laws, Stoichiometry, order and molecularity of reactions- First order, second order, third order and zero order reactions and example. Characteristics of I,II,III and Zero order reactions. Determination of order of reactions-expression for rate constant of first and second order reaction-derivation. Effect of temperature on rate constant. The activation energy -determination of Arrhenius frequency factor and energy of activation-The collision theory of reaction rates and its limitation. Lindemann theory of unimolecular reactions-The theory of Absolute reaction rates. Comparison of the collision theory with the Absolute reaction rate theory.	On the completion of the course the student will be able to 1. Explain the theories of chemical kinetics 2. Determine the order of a chemical reaction. 3. Determine the half-life period of chemical reactions.	15
2	Molecular Spectroscopy Electromagnetic radiation (EMR)-absorption and emission spectra – band spectra-types of molecular spectra – rotational spectra – rotational spectra of diatomic molecules – frequencies separation – determination of moment of inertia and bond lengths	1. Understand the interactions of electromagnetic radiation with molecular spectroscopy 2. Determine the moment of inertia and bond lengths 3. Get knowledge about the rotational spectroscopy.	15
3	Raman & IR Spectroscopy Raman spectroscopy: Principle - Rayleigh and Raman scattering - Stokes and Anti-stokes lines. Vibrational spectra – IR spectra of diatomic molecule – rotation vibration spectra of diatomic molecule – applications of IR spectroscopy. Comparison of Raman and IR spectra.	1. Understand the basic principles of Raman & IR spectroscopy 2. Find the functional group with the help of IR spectroscopy 3. Compare IR and Raman spectroscopy and their applications.	15
4	NMR, ESR and Mass Spectrometry Nuclear magnetic resonance spectroscopy: Introduction – chemical shift – NMR frequency – spin-spin coupling – spectra of ethanol- Applications of NMR spectroscopy. Electron Spin resonance spectroscopy: Principle of hyperfine splitting – ESR spectra of hydrogen and methyl radical- Applications of ESR. An introduction to mass spectrometry: Parent peaks – base peaks – isotopic peaks – metastable peaks – fragmentations – nitrogen rule and McLafferty rearrangement. Applications of mass spectrometry.	1. Understand the basic principles of NMR, ESR and Mass Spectrometry 2. Understand the fragmentation pattern in mass spectra. 3. Apply NMR, ESR and Mass spectroscopy to find the structure of molecule.	15
5	Group Theory Group theory– symmetry elements and symmetry operations – Definitions of Identity (E), proper rotation axis (n), Mirror plane (σ), Inversion center (i) and rotation-reflection axis (S_n). Symmetry operations generated by these symmetry elements using examples like H ₂ O, NH ₃ , BF ₃ , PtCl ₄ ²⁻ , H ₂ O ₂ (planar, <i>cis</i> and <i>trans</i>) and CH ₄ . Condition for a set of elements to form a group – Abelian and cyclic groups -Group multiplication table-Molecular point groups – assignment of point groups to simple molecule like H ₂ O and NH ₃	1. Understand the basic concept of group theory 2. Write the point groups of simple molecules 3. Write the group multiplication table of simple molecules.	15

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Principles of Physical chemistry	Puri, Sharma and Pathania	2017 (47)	Vishal Publishing Co, New Delhi.
2	Text Book of Physical chemistry	P.L.Soni	2011 (23)	Sultan Chand & Company, New Delhi
3	Atkins’ Physical Chemistry	Peter Atkins	2015 (10)	Oxford University Press, New York

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Physical Chemistry	Atkins	2010 (10)	Oxford University Press, New Delhi.
2	Physical Chemistry	G.M.Barrow	2006 (5)	Tata McGraw Hill, New Delhi.
3	Chemical Application of Group Theory	F.A.Cotton	2006 (3)	John-Wiley & Sons, New Delhi.


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER V

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHE61	Course Title: Analytical Chemistry
Category: Core Elective-2	Credits: 4 Hrs:4

Objectives:

1. To know the importance of error and data analysis.
2. To study the determination of water quality parameters
3. To study fuel analysis
- 4.To study the different types of electroanalytical techniques 5.To study Spectroanalytical and Thermoanalytical Methods

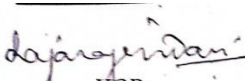
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Water Analysis Sampling and preservation of water samples – physical examination of water : colour, odour, turbidity, taste and electrical conductivity – chemical characterisation : pH, acidity, alkalinity, TDS, total, temporary, permanent, calcium and magnesium hardness, chloride, fluoride, BOD, COD, detergents and pesticides – residual chlorine and chlorine demand – Bacteriological examination : total and faecal coliforms.	On the completion of the course the student will be able to 1. Analyze pH, conductivity, acidity, alkalinity and hardness of water. 2. Determine the BOD and COD of water. 3. Apply the bacteriological examination.	12
2	Fuel Analysis Fuels – Introduction, types, Solid fuels : coal – classification – proximate analysis : moisture content, ash content, volatile matter and fixed carbon – ultimate analysis : carbon, hydrogen, nitrogen, sulphur and oxygen – heating values – grading of coal – comparison of coal and coke – liquid fuels : flash point, aniline point, octane number and carbon residues – gaseous fuels : producer gas and water gas – calorific values. Extraction of petroleum, Comparison between solid, liquid and gaseous fuels.	1. Understand the importance of fuels in industries. 2. Determine the calorific values of Coal. 3. Get knowledge about flash point, aniline point, octane number and carbon residues.	12
3	Electroanalytical Techniques Electrogravimetry : principle, instrumentation and applications. Coulometry : constant current coulometry – coulometric titrations – applications – potentiostatic coulometry – Polarography : principle – experimental assembly – working – advantages and disadvantages of DME – applications to qualitative and quantitative analysis. Amperometric titrations : theory – apparatus – general procedures – applications – advantages.	1. Understand the different types of Electroanalytical techniques. 2. Explain the principle, instrumentation of different electroanalytical techniques. 3. Apply the electroanalytical techniques to study the properties of compounds.	12
4	Spectroanalytical and Thermoanalytical Methods Spectroanalytical methods: principle, instrumentation and applications of colorimetry, spectrophotometry and fluorimetry – light scattering techniques: nephelometry and turbidimetry. Thermo analytical methods : principle, instrumentation and applications of TGA and DTA – characteristic features of TGA and DTA curves – factors affecting TGA and DTA curves – simultaneous DTA - TGA curves – thermometric titrations. Chromatography: paper, thin layer, HPLC, Ion Exchange and gas Chromatographic techniques.	1. Understand the different types of spectro and thermoanalytical techniques. 2. Explain the principle, instrumentation of spectro and thermoanalytical techniques. 3. Apply the spectro and thermoanalytical techniques to study the properties of compounds.	12
5	Errors and Data Analysis Definition and explanation with examples of the terms – mean, median, mode, range, deviation, mean deviation, relative mean deviation, standard deviation, coefficient of variation and variance – accuracy and precision – types of errors – random and systematic errors – methods of detection and elimination of systematic errors – student's t-test – confidence levels – Q-test for rejection of result – curve fitting – method of least squares – significant figures and computational rules.	1. Eliminate errors. 2. Compare the results. 3. Apply the error analysis, accuracy and precision in various fields.	12

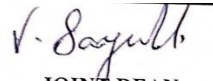
Text Books:

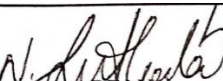
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Elements of Analytical Chemistry	R.Gopalan, P.S.Subramanian, K.Rengarajan	2003 (3)	Sultan Chand & Sons, New Delhi
2	Analytical chemistry	Gary D. Christian	2004 (6)	John Wiley & Sons, New Delhi.

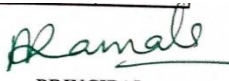
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
3	Industrial Chemistry	B. K. Sharma	2011 (16)	Goel Publishing House, Meerut.
1	Principles and Practice of Analytical Chemistry	F.W. Fifield, D. Kealey	2000 (5)	Marston Book Services Ltd, Po Box 269 Abingdon Oxon OX14 4YN


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER V

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHE62	Course Title: Pharmaceutical Chemistry
Category: Core Elective-2	Credits: 4 Hrs:4

Objectives:

- 1.To understand the concepts and terminologies of pharmaceutical chemistry
- 2.To know the mechanism of action and metabolism of drugs
3. To study the functions of various drugs
4. To know the important diseases and their treatment
5. To study the common diseases and important disorders of human beings and the drugs used in the treatment.

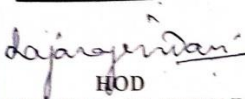
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Important Terminologies, Classification and Assay Important terminologies - pharmacology, molecular pharmacology, pharmacophore , metabolites, antimetabolites, virus, bacteria, fungi, actinomycetes, mutation, pharmacognosy, pharmacotherapeutics, toxicology, chemotherapy – classification of drugs – nomenclature of drugs – nonproprietary names – sources of drugs – assay of drugs (biological, chemical, immunological)	On the completion of the course the student will be able to 1. Understand the importance of pharmaceutical chemistry. 2. Get knowledge about chemotherapy. 3. Understand the nomenclature of drugs.	12
2	Mechanisms, Metabolisms and Medicinal Plants Mechanism of drug action – absorption, drug delivery, drug excretion –Metabolism of drugs –chemical pathways of drug metabolism – phase - I (oxidative, reductive and hydrolytic reactions) and phase - II (conjugate reactions). Physiological effects of different functional groups in drugs –biological role of Na, K, Ca, Cu, Zn and iodine. Indian medicinal plants – Tulsi, neem, Keezhanelli, adathode, thoothuvalai	1. Understand the mechanism of action and metabolism of drugs. 2. Physiological effects of different functional groups in drugs. 3. Apply the Indian medicinal plants for treatment.	12
3	Drugs and Functions Analgesics- narcotic analgesics- analgesic action, uses and structure activity of morphine. Non-narcotic analgesics –aspirin and paracetamol. Anaesthetics- local anaesthetics –procaine- General anaesthetics- chloroform and halothane. Antibiotics – Therapeutic values of penicillin, tetracyclines, chloramphenicol and streptomycin. Sulpha drugs – sulphanilide, sulphadiazine and cotrimoxazole. Antiseptics and disinfectants – phenols, chloramines and organic mercurials. Antidepressants – barbiturates – mechanism of action and uses. Antipsychotic drugs – piperazine and benzamides. cardiovascular drugs -Amyl-nitrate, sorbitrate, Verapamil.	1. Draw the structure of analgesics, antibiotics and Sulpha drugs. 2. Understand the mechanism of action of analgesics, antibiotics and Sulpha drugs. 3. Get knowledge about the uses of analgesics, antibiotics and Sulpha drugs.	12
4	Diseases and Treatment Composition of blood – blood grouping and matching – Rh factor. Blood pressure – causes, control and treatment- antihypertension drugs- antianginal agents cardiovascular drugs, cardiac glycosides, vasodilators (one example for each). Anaemia – causes and control – antianemic drugs. Diabetes – causes and control – hypoglycemic drugs – insulin – oral hypoglycemic drugs (tolubutamide and chlorpropamide). Cancer- causes and treatment – cobalt therapy -antineoplastic drugs (chlorambucil, methotrexate, plant products and hormones).	1. Get knowledge about composition of blood, grouping and matching. 2. Aware of blood pressure, anaemia, diabetes and cancer. 3. Get an idea about treatment of blood pressure, anaemia, diabetes and cancer.	12
5	Common Diseases and Health Care Medicines Common diseases – causes and treatment of insect borne diseases (Malaria and Filariasis), Airborne diseases (Diphtheria, Whooping cough, Influenza, common cold, TB) and Water borne diseases (Cholera, Typhoid and Dysentery). Hereditary disease, diabetes, heart disease, cancer, Digestive disorder – Jaundice. Respiratory disorder –Asthma. Nervous system disorder – epilepsy. Other diseases – Leprosy. Health care medicines – Sources and deficiency diseases of Vitamins A, B complex, C , D, E and K.	1. Aware of insect borne, air borne and water borne disease and the drugs used in the treatment. 2. Get knowledge about digestive disorder and respiratory disorder. 3. Aware of the deficiency diseases of Vitamins A, B complex, C, D, E and K.	12

Text Books:

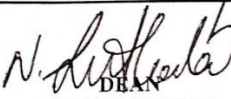
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	A text book of pharmaceutical chemistry	Jayashree ghosh	2014 (5)	S. Chand & Co, New Delhi.
2	Pharmaceutical Chemistry	S. Lakshmi,	2004 (4)	Sultan Chand & Sons, New Delhi.

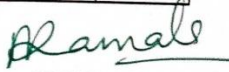
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Medicinal chemistry	G.R.Chatwal	2002 (1)	Himalaya Publishing House, New Delhi
2	Drugs	G.L.D. Krupadanam, D.V. Prasad, K.V.Rao, K.L.N.Reddy and C.Sudhakar	-	Tata McGraw- Hill Publishing Company, New Delhi.


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER VI

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHE63	Course Title: Nano Chemistry
Category: Core Elective-3	Credits: 4 Hrs:4

Objectives:

1.
- To give an insight into the basics of nanochemistry.
2.
- To understand the difference between bulk material and nanomaterial and learn the synthesis, application and fabrication of nanostructure.
3.
- To study the importance of nanostructured materials.
4.
- To make the students familiar with the characterization of nanomaterials.
5.
- To study the applications of nanomaterials.

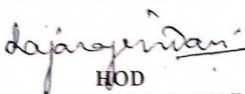
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Introduction to Nano chemistry The Science of Nano – nanotechnology – nanochemistry – significance of nanoscale - factors responsible for special properties of nanomaterials. Classifications of nanostructured materials, nanoparticles; quantum dots, nanowires, ultra-thin films-multilayered materials. Length Scales involved and effect on properties: Mechanical, Electronic, Optical, Magnetic and Thermal properties.	On the completion of the course the student will be able to 1. Understand the basic concept of nanochemistry 2. Get knowledge about different types of nanomaterials 3. Understand the properties of nanomaterials.	12
2	Synthesis of Nano particles Introduction –Bottom-up Synthesis-Top-down Approach:Physical methods: laser ablation, physical vapour deposition (PVD) Chemical methods: thermolysis, sonochemical method, reduction methods, phase-transfer processes and biosynthesis of nanoparticles. Synthesis of nanosized semiconductors: precipitation methods and thermal decomposition of complex precursors.	1. Understand the physical methods of synthesis of nanomaterials 2. Get knowledge about different chemical methods of synthesis of nanomaterials 3. Prepare metal nanoparticles using green methods	12
3	Introduction to Nanostructures : Introduction- Carbon Nanotubes (CNT), Graphenes, Fullerenes, Nano Peapods, Quantum Dots and Semiconductor Nanoparticles Metal- based Nanostructures (Iron Oxide Nanoparticles) Nanowires Polymer- based Nanostructures including dendrimers, Introduction to metal based nanostructures, Protein-based Nanostructures: Nanomotors: Bacterial (E. coli) and Mammalian (Myosin family) Nanobiosensors: Science of Self-assembly - From Natural to Artificial Structures Nanoparticles	1. Get knowledge about the types of nanostructured materials. 2. Get knowledge about the metal based nanostructures & Protein-based Nanostructures 3. Get knowledge about Nanobiosensors.	12
4	Characterization Methods Electron probe method- Scanning electron microscopy – Transmission electron microscopy, Spectroscopic Methods, - UV – Visible adsorption and emission spectroscopy, Infra Red and Raman spectroscopy and X-ray diffraction methods (instrumentation and working).	1. Understand the instrumentation of various spectral techniques 2. Explain the working principles of various spectral techniques 3. Apply the characterization technique to find the size & structure of nanomaterial.	12
5	Applications of nanomaterials. Current applications: sunscreens and cosmetics – nano medicine, drug delivery and cancer diagnosis and therapy– food and drinks, textiles, chemical industry and electronic devices. Short term applications - paints – fuel cells – displays – batteries – fuel additives and catalysts. Long term applications- composites – lubricants – magnetic materials – medical implants – machinable ceramics – water purification and military battle suits.	1. Get knowledge about the application of nanomaterial in water purification. 2. Get knowledge about the application of nanomaterial in medicine, drug delivery, cancer diagnosis and therapy 3. Get knowledge about the use of nanocatalyst in various reactions.	12

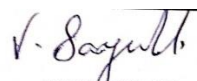
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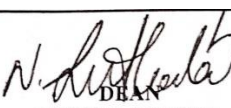
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Nano Technology	S.Shanmugam,	2010 (1)	MJP Publishers, Chennai,
2	Introduction to Nano Technology	J.R. Poole, P.Charles, Owens, J.Frank	2014	Wiley India Ltd, New Delhi

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Nanochemistry: A chemical approach to nanomaterial	Geoffrey A. Ozin and Andre C. Arsenault,	2005 (1)	RSC publishing, U.K.
2	Nanoscale Materials in Chemistry	Kenneth J. Klabunde	2001 (1)	Wiley-Interscience, New York


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER VI

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHE64	Course Title: Green Chemistry
Category: Core Elective-3	Credits: 4 Hrs:4

Objectives:

1.
- To introduce the basics of GreenChemistry
2.
- To make the students familiar with the usage of green solvents and green catalysts in chemical reactions.
3.
- To understand the principles and designing a green synthesis of selectedcompounds
4.
- To learn the principles of the microwave and ultrasound assistedreactions
5.
- To study the importance of greenChemistry

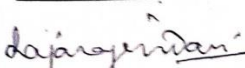
Unit	Detailed Syllabus	Unit Outcome	Hrs
1	Introduction to green chemistry Definition – need for green chemistry – scope of green chemistry. Concepts of atom economy – yield – mass intensity and atom economy. Calculation of atom economy, mass intensity, mass productivity and carbon efficiency. Different types of reactions and atom economy - addition, substitution, elimination and rearrangements. Concept of selectivity – enantioselectivity, chemoselectivity, regioselectivity and diastereoselectivity.	On the completion of the course the student will be able to 1. Understand the basic concept of greenchemistry 2. Calculate the atom economy, mass intensity, mass productivity and carbonefficiency 3. Understand the concept of Selectivity	12
2	Green solvents Super critical fluids – Introduction – extraction of super critical fluids – solvents of super critical fluid– advantages and applications. Carbondioxide as a super critical fluid – features of technique for using super critical carbondioxide - advantages and applications. Chemical reactions in supercritical water and Near – Critical Water (NCW)- Region. Extracting natural products, dry cleaning, supercritical polymerization, hydrogenation and hydroformylation ionic liquid as green solvent: Introduction – synthesis of ionic liquids - acidic ionic liquid and neutral ionic liquids – applications in organic synthesis. Green reagents: Dimethyl carbonate and Polymer supported reagents.	1. Get knowledge about green solvents 2. Understand the applications of greensolvents 3. Apply the green solvent and green reagents to saveenvironment	12
3	Green catalysts Catalysis over view: acid catalyst - basic catalyst – oxidation catalyst – polymer supported catalyst- photosensitized super acid catalyst and Tetra Amido Macrocylic Ligand (TAML) catalyst. Biocatalyst: microbial oxidation, microbial reduction, enzyme catalyzed hydrolytic process, perfluorinated catalyst and modified biocatalyst. Development of mesoporous supports by liquid crystal templating – neutral templating methods- heterogeneous catalyst – solid supportedcatalyst.	1. Understand the role ofdifferent green catalysts in chemical reactions 2. Get an idea about heterogeneous catalyst 3. Understandthe enzyme catalysed reactions	12
4	Greener Technologies Design for energy efficiency, photochemical reactions, advantages and challenges faced by photochemical process, examples of photochemical reactions. Chemistry using microwaves- microwave heating, microwave assisted reactions, Sonochemistry and green chemistry, electrochemical synthesis	1. Understand the concept ofgreen synthesis of organic compounds 2. Get knowledge about microwave assistedreactions 3. Get an idea about ultrasound assisted reactions	12
5	Green reactions invloving basic principle of green chemistry. Twleve principles of green chemistry – choice of starting materials – biomimetic, multifunctional reagents – materials reagents. Combinatorial green chemistry – green chemistry insustainable developments. Importance of Green chemistry in day to day life, versatile bleaching agents and analgesic drugs.	1. Understand the basic principlesof green chemistry 2. Get an idea about choice of startingmaterials 3. Understand the importance of Green chemistry in day to day life.	12

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	New Trends in Green Chemistry	V.K.Ahluwallia & M.RKidwai	2005	Anamalaya Publishers, New Delhi.
2	Green Chemistry Environmentally Benign Reaction	V.K.Ahhlwallia	2009 (1)	Ane Books Pvt.Ltd. New Delhi
3	Green Chemistry Environment Friendly Alternatives	Rashmi Sannghi & MM Srivastava	2009	Narosa Publishing House Pvt Ltd, New Delhi

Reference Books:

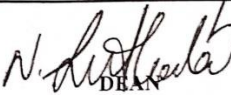
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Green Chemistry, Theory and Practical	P.T.Anaster & J.K.Warnerr	1998	Oxford University Press, New Delhi.
2	Introduction to Green Chemistry	Albert.S. Matlack	2001 (1)	Marcel Deckkar, New York



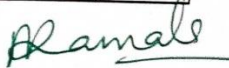
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Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHCL61	Course Title: Gravimetric Estimation & Organic Preparations
Category: Core Practical – 6	Credits: 2 Hrs:4

Objectives:

1.
- To enable the students to understand the various technique in gravimetric estimations
2.
- To make the students thorough in organic preparations

Detailed Syllabus	Course Outcome	Hrs
Gravimetric Estimation 1. Estimation of Lead as lead chromate 2. Estimation of Barium as barium chromate 3. Estimation of Nickel as nickel dimethylglyoximate 4. Estimation of Zinc as zinc oxinate 5. Estimation of Copper as copper thiocyanate Organic preparation 1. Preparation of Salicylic acid from methyl salicylate 2. Preparation of Benzoic acid from benzamide 3. Preparation of Benzoquinone oxime from benzoquinone 4. Preparation of p-bromoacetanilide from acetanilide 5. Preparation of 2-naphthyl benzoate from 2-naphthol 6. Preparation of Picric acid from phenol 7. Preparation of Methyl orange from sulphanilic acid 8. Preparation of Glucosazone from glucose	On the completion of the course the student will be able to 1. Estimate inorganic metal ions such as lead, nickel, Zinc and Barium by gravimetry. 2. Understand the mechanism involved in the preparation of organic compounds 3. Understand the techniques involving drying and recrystallization process.	4 Hrs/ Week

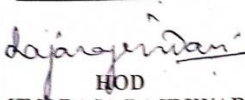
Internal – 40 marks
20 marks – Average of best (estimation-3 and preparation-5) eight experiments in regular class work
External -60 marks
10 marks – Record (at least eight experiments estimation-3 and preparation-5) * 20 marks- Organic preparation (procedure-5 & preparation-15)
30 marks – Gravimetry (procedure- 5 & estimation-25)
*Experiments done in the class alone should be recorded (Students having a bonafide record only should be permitted to appear for the practical examination)

Text Books:

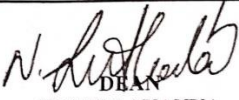
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Practical Chemistry	O.P.Pandey, D.N.Bajpai & S.Giri	2001 (8)	S.Chand & Company Ltd, New Delhi
2	Vogel's text book of Quantitative Chemical Analysis	A.I. Vogel	1997 (5)	Longman Group, Singapore

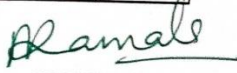
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Advanced Course in Practical Chemistry	Ghoshal, Mahapatra & Nad	2000	New Central Book Agency (P) Ltd., Kolkata
2	Practical Chemistry	S.Sundaram, P.K.sishnan, P.S.Raghavan	2007 (1)	S.Viswanathan (Printers & Publishers), (P) Ltd., Chennai.


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DR(SMT)V.SANGEETHA


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 SEMESTER VI

Programme: B.Sc	Subject: CHEMISTRY
Course code: 19UCHCL62	Course Title: Physical Chemistry Experiments
Category: Core Practical- 7	Credits: 2 Hrs:3

Objectives:

To enable the students to understand the principles of physical chemistry experiments

Detailed Syllabus	Course Outcome	Hrs
1. Determination of molar mass of the given substance by Rast macromethod 2. Determination of molecular weight of the given substance by Transition temperaturemethod 3. Determination of solubility of a substance at different temperatures and calculation of heat ofsolution 4. Study of phase equilibrium – Simpleeutectic 5. Estimation of HCl by conductometric method using standard oxalic acid (to be prepared) and linkNaOH 6. Estimation of MgSO4 by conductometric method using standardMgSO4 (to be prepared) and link BaCl2 7. Estimation of Fe(II) by potentiometric method using standard ferrous ammonium sulphate (to be prepared) and linkKMnO4 8. Estimation of KMnO4 by potentiometric method using standard K2Cr2O7 (to be prepared) and link ferrous ammoniumsulphate 9. Comparison of the strengths of acids by studying the kinetics ofester hydrolysis 10. Determination of CST of phenol-water system. Study of the effect of impurity on CST and determination of the strength of unknown	On the completion of the course the student will be able to 1. Determine the molar mass of any givensubstances. 2. Apply the principleof conductometry and potentiometry in estimation of unknowncompound. 3. Determine the molecular weight of the given substance. 4. Determine theconcentration of unknown compound. 5. Apply the phase equilibria to simple eutecticsystems.	3 Hrs/ Week

Internal – 40marks

20 marks -Regularity

20 marks – Average of best eight experiments in regular class work

External -60 marks

10 marks – Record (atleast seven experiments)* 10 marks – Procedure

40 marks – Experiment

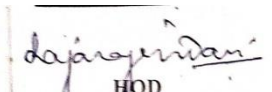
*Experiments done in the class alone should be recorded (Students having a bonafide record only should be permitted to appear for the practical examination)

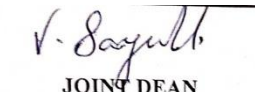
Text Books:

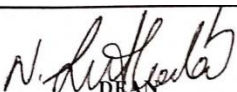
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Practical Chemistry	O.P.Pandey, D.N.Bajpai & S.Giri	2001 (8)	S.Chand & Company Ltd, New Delhi
2	A Book of Practical Chemistry	G. S. Gugale et al.,	2017 (2)	Nirali Prakashan Yogiraj Printers and Binders, Pune.
3	Practical Chemistry	S.Sundaram, P.Ksishnan, P.S.Raghavan	2007 (1)	S.Viswanathan (Printers & Publishers), (P) Ltd., Chennai.

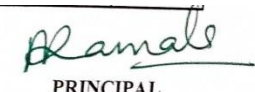
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Vogel’s text book of Quantitative Chemical Analysis	A.I. Vogel	1997 (5)	Longman Group, Singapore
2	Advanced Course in Practical Chemistry	Ghoshal, Mahapatra & Nad	2000	New Central Book Agency (P) Ltd., Kolkata


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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11
DEPARTMENT OF CHEMISTRY CERTIFICATE PROGRAMME
CERTIFICATE IN FOOD CHEMISTRY

15. COURSE TITLE: FOOD CHEMISTRY

16. OBJECTIVES OF THE COURSE

- To acquire the basic knowledge of food chemistry.
- To acquire knowledge on nutrition contents in food
- To became aware of various preservation techniques
- To impart practical knowledge on different cooking techniques
- To make them know how to prepare different recipes.

17. OUTCOMES

- Know the basics of food chemistry
- Get the idea about nutrition tips
- Know the food preservation methods
- Able to do the various food items
- Understand the food preparation techniques.

18. SYLLABUS /UNITS

Unit – I Introduction to food chemistry

Definition for food chemistry- Food as a source of energy biological importance, functions and formula of carbohydrates, fats, proteins, vitamins – food rich in carbohydrates, fat, protein, different types of Vitamin, Micronutrients, Iron.

Unit- II Food preservation

Definition — Different various method of preservation and techniques involving storage– Hurdle technology – Method of Storing oils and fats – Dry storage of foods – Food Rotation.

Unit – III Nutrition tips

kitchen clean up tips, home management tips – seven things not to do after eating

Unit - IVFood preparation

Essence of food preparation – cooking technique – Nutirtional value of food – Nuts & oil seeds – Nutritive value of Egg – Waterless cooking – Novel food additives.

Unit –V Recipe of Food items

Different Pulav and Biriyani – Different types of Kurmas – Paneer recepies - Vathal and Vadagam – Pickles – Sweets - Karam

5. REFERENCE:

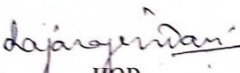
S.No	Title of the Book	Author/s	Year(Edn)	Publisher/s
1	Nutrition Science	B. Srilakshmi	2012 (4)	New age international private Ltd, New Delhi.
2	Dietetics	B. Srilakshmi	2011 (6)	New age international private Ltd, New Delhi.
3	Food Preservatives	<u>Nicholas J. Russell</u> , <u>Grahame W. Gould</u>	2002 (2)	Springer.

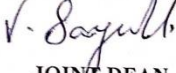
6. ELIGIBILITY: Minimum +2 (Open to all on their options)

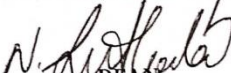
7.DURATION: 35 Hours (1Semester)

8.EXAMINATION/ EVALUATIONCOMPONENTS

Internal (40)	External (60)
Average of two tests = 20 marks Assignment 1 = 5 marks Quiz 1 = 5 marks FV / Case study / Record =10 marks	Section A – True / False – 10 marks Section B – 5 out of 8 (4 marks) = 20 marks Section C- 3 out of 5 (10 marks) = 30 marks


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DEPARTMENT OF CHEMISTRY
DIPLOMA PROGRAMME
DIPLOMA IN FORENSIC CHEMISTRY

1.COURSE TITLE :FORENSIC CHEMISTRY

2.OBJECTIVES OF THE COURSE

- To understand the importance of forensic chemistry.
- To acquire knowledge on adulterants in food.
- To find a suitable method to detect the crime.
- To study the importance of spectral technique.

3.OUTCOMES

- Know the contamination of food
- Get an idea about crime detection
- Find out forgery in different places

4.SYLLABUS /UNITS

Unit I: Food Adulteration

Contamination of wheat, rice, dhal, milk, butter, etc. With clay, sand, stone, water and toxic chemicals (e.g. Kasser dhal with mentanil yellow). Food poisons: natural poisons (alkaloids, nephrotoxins), pesticides (DDT, BHC, Follidol), Chemical poisons (KCN). First aid and Antidotes for poisoned persons.Heavy metal (Hg, Pb, Cd) Contamination of Sea food. Use of neutron activation analysis in detecting poisoning (e.g., As in human hair)

Unit II :Transportaion

Driving: breath analyzer for ethanol. Incendiary and timed bombs in road and railway tracks.Defusing live bombs. Hit -and-go traffic accidents : paint analysis by AAS. Soil of toxic and corrosive chemicals (e.g., conc.acids) from tankers.

Unit III : Crime Detection

Accidental explosions during manufacture of matches and fire-works (as in Sivakasi). Human bombs, possible explosives (gelatin sticks, RDX). Metal detector devices and other security measures for VVIP. Composition of bullets and detection of powder burns. Scene of crime: finger prints and their matching using computer records. Smell tracks and police dogs. Analysis of blood and other body fluids in rape cases.Typing of blood. DNA finger printing for tissue identification in dismembered bodies. Blood stains on clothing. Cranial analysis (head and teeth).

UnitIV: Forgery and Counterfeiting

Detecting forgery in bank cheques / drafts and educational records (mark lists, certificates), using UV-light. Alloy analysis using AAS to detect counterfeit coins. Checking silver line water mark in currency notes.Jewellery : detection of gold purity in 22 carat ornaments, detecting gold plated jewels, authenticity of diamonds (natural, synthetic, glassy).

UnitV : Medical Aspects

Cause and prevention .Misuse of scheduled drugs.Burns and their treatment by plastic surgery.Metabolite analysis, using mass spectrum - gas chromatography.Detecting steroid consumption among athletes and race horses.

5.REFERENCE BOOKS:

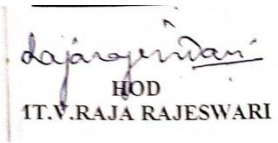
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Forensic Chemistry	Bell, Suzanne	2006 (1)	Prentice Hall
2	Forensic Science	Jackson, Andrew R.W and Julie M.Jackson	2004 (1)	Prentice Hall
3	The Science of Crime Science Investigation : The forensic Casebook	N.E.Genge	2002	Ballentine Books, New York.
4	Basic Principles of Forensic Chemistry	Khan, Javed, Kennedy, Thomas J	2009	Human Press

6.ELIGIBILITY: Minimum +2 (Open to all on their options)

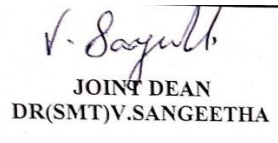
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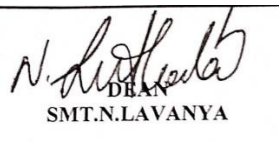
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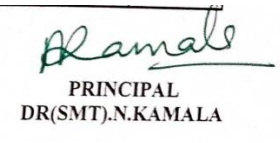
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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI – 11 DEPARTMENT OF CHEMISTRY
CERTIFICATE PROGRAMME CERTIFICATE IN CHEMISTRY IN EVERYDAY LIFE

1.COURSE TITLE : CHEMISTRY IN EVERYDAY LIFE

2.OBJECTIVES OF THE COURSE

- To establish in very simple terms the place of chemistry in modern life.
- To learn about water, water pollution and its treatment
- To acquire basic knowledge of fertilizers and insecticides.
- To learn about the polymer and its applications.
- To acquire basic knowledge of drugs

3.OUTCOMES

On the completion of the course the student will be able to

- Know the standard water quality parameters for drinking water
- Get idea about the natural and artificial manures
- Acquire the knowledge about polymers
- Get acquire the knowledge about soaps and detergents
- Know the medicines used in day to day life.

4.SYLLABUS

UNIT- I: Water

Electrolysis of water – water cycle – air in water – DO – BOD – COD – water pollution – control of water pollution-water treatment- Reverse osmosis- deioniser – Hygroscopy and deliquescence – water in crystals – efflorescence – hard water- soft water – permanent and temporary hardness - removal of hardness – advantage and disadvantage – potable water – standards for drinking water.

UNIT- II: Fertilizers and Insecticides

Classification of fertilizers- natural manures- artificial manures- chemical fertilizers-advantages of artificial fertilizers–bio- fertilizers – insecticides- inorganic insecticides- natural or plant insecticides-organic insecticides -dinitro phenols, DDT, methoxychlor, BHC- pesticides - disadvantages – bio-pesticide- blue green algae, vermicompost.

UNIT- III: Polymers and Modern materials

Fibres: Natural and synthetic fibres- cotton, wool, coir, silk, linen, polyester, viscose rayon.

Synthetic polymer- organic polymer- inorganic polymer- silicon based polymer and its uses – conducting polymer – biodegradable polymers.

Resins: phenol- formaldehyde resins- resins on protective coatings- household appliances –PVC- HDPE-LDPE- Teflon- natural rubber – vulcanization- recycled plastics –medical applications of polymers.

UNIT-IV: Industrial products

Soaps and detergents – an elementary idea of soaps and detergents, cleansing action of soaps and detergents, advantages of detergents over soaps. Cement and glass: Portland cement, glass- definition, types and uses. Lubricants-classification-criteria of good lubricating oils.Abrasives and refractories – definition, classification and uses.

UNIT-V: Drugs

Definition- chemotherapy- antibiotics, anaesthetics, analgesic, antipyretic and anti inflammatory, antiseptics and disinfectants

5.REFERENCE

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Textbook of Polymer Science	F. N. Billmeyer	2010	John Wile ltd, New Delhi
2	A text book of Pharmaceutical Chemistry	Jeyashree Gosh	2014	S. Chand and Company, New Delhi

Reference Books:

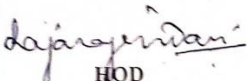
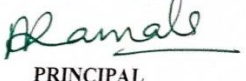
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Industrial Chemistry	B. K. Sharma	2011 (16)	Goel Publishing House, Meerut
2	Water Pollution	P.K. Goel	2006	New Age International (p) Ltd New Delhi

6.ELIGIBILITY: Minimum +2 (Open to all on their options)

7.DURATION: 35 Hours (1 Semester)

8.EXAMINATION/ EVALUATION COMPONENTS

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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11
DEPARTMENT OF CHEMISTRY CERTIFICATE PROGRAMME
CERTIFICATE IN COSMETICS AND CONSUMER PRODUCTS

1. COURSE TITLE: COSMETICS AND CONSUMER PRODUCTS

2. OBJECTIVES

- To learn about the composition, purpose of the cosmetics and consumer products.
- To be aware of hair colorants
- To know face and body cosmetics.
- To prepare chalk, crayons, inks, shoe polish, candle and cleansing agents.
- To learn packing methods and licensing.

3. OUTCOMES

On the completion of the course the student will be able to

- Know the caring of hairs.
- Get the idea about uses of cosmetics.
- Acquire the knowledge about cleansing agents.
- Apply their knowledge in preparing simple cottage industrial compounds like inks, chalk etc.
- Know the packing methods and licensing

4. SYLLABUS

Unit-I: Hair care and colorants

Hair structure-permanent hair waving-cold waving-shampoos-different types and formulations-hair conditioners and setting lotions-hair straightening-curling. Hair colorants- hair lighteners and bleaches-temporary colorants-semi and permanent colorants-vegetable dyes-oxidation dyes and modifiers.

Unit-II: Face and body cosmetics

Face powder-talcum powder-medicated powder-bleachers-facials-cold creams- sunscreen lotions-SPF factor- formulation. Deodorants-Antiperspirants-distinction between astringents and deodorants- formulation-lotions-perfumes-formulation. Lipsticks-classification and formulation

Unit-III: Toiletries and cleansing agents

Bath soap- bath powders – bath oils – water softeners-tooth pastes-ingredients-their characteristic functions-mouth washes-shaving creams-after shave preparations. Detergents- classification-formulation-cleansing action-optical brighteners-bleachers-phenoyls-black phenoyls, scented phenoyls.

Unit-IV: Preparation of Consumer Products

Preparation of Face Powder, Tooth Powder, Candle, Phenyl, Soap & Detergents, Chalk, crayons, inks, sunscreen, nail polish, shampoo, agar batis, pain balm and shoe polish.

Unit-V: Packing and Licensing

Leading firms, brand names, choosing the right product. Packing regulations. Marketing. Licensing – drug license – legal aspects. GMP – ISO 9000/12000 – consumer education. Evaluation of the product – advertisements.

5. REFERENCES Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Science and Beauty Business Vol-1	J. V. Simons	1989	Macmillan Education Ltd
2	Applied Chemistry	O. P. Vermani and A. K. Narula	2008	New Age International Publishers, New Delhi

Reference Book:

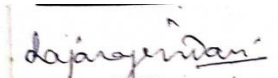
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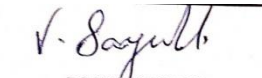
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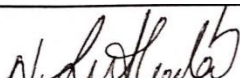
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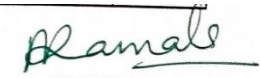
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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI – 11 DEPARTMENT OF CHEMISTRY
DIPLOMA PROGRAMME DIPLOMA IN BIOMEDICAL CHEMISTRY

1.COURSE TITLE: BIOMEDICAL CHEMISTRY

2.OBJECTIVES OF THE COURSE

- To learn about amino acids and proteins
- To get an idea about enzyme catalysis
- To acquire basic knowledge of lipids
- To learn carbohydrate metabolism
- To study about nucleic acids

3.OUTCOMES

On the completion of the course the student will be able to

- Get knowledge about disease causing agents.
- Know the action of drugs.
- Acquire the knowledge about action of anaesthetics.
- Know the basic medicines used in the Analgesic, Antipyretic and Anti inflammatory
- Understand the drugs used in the antiseptics and disinfections.

4.SYLLABUS/UNITS

Unit I – Common Diseases

Virus- Structure of a typical virus, Brief account on Viral diseases -Polio, Rabies and AIDS. Bacteria-Structure of typical Bacteria, Brief account on Bacterial diseases - Cholera, Tuberculosis and Tetanus. Fungal diseases – Ringworm and Black piedra. Protozoan diseases – Amoebic dysentery and Malaria. Helminth parasites – *Ancylostoma* and *Wuchereria*

Unit II- Drug Chemistry

Drugs - drug targets- cell structure-drug targets at the molecular level-Intermolecular bonding forces-Electro static and ionic bonds-hydrogen bonds-Van der Waals interactions- Dipole-dipole interactions-Repulsive interaction-role of water and hydrophobic interactions-Drug targets: Lipids as drug targets-carbohydrates as drug targets. proteins and nucleic acid as drug targets.

UNIT III- Anaesthetics

Definition – characteristics – mode of action – classification –gaseous anaesthetics – advantage and disadvantages of vinyl ether, cyclopropane, Halohydrocarbon, chloroform – Haloethane, Trichloroethylene. Thiopental sodium advantages and disadvantages of cocaine and benzocaine (structure and therapeutic use only).

UNIT IV: Analgesic, Antipyretic and Anti-inflammatory

Analgesic: Definition – narcotic analgesic – morphine and its derivative, pethidine and methadone. Non- narcotic analgesic.**Antipyretic analgesics:** salicylic acid derivatives – indole derivatives and p – aminophenol derivatives. **Anti-inflammatory:** paracetamol, naproxen and ibuprofen (medicinal uses and structure only).

UNIT V: Antiseptics and Disinfectants

Definition, uses – distinction between disinfectants and antiseptics – phenol derivative, halogen compounds – bleaching powder – dyes – organic mercurials – formaldehyde and its derivatives – nitro furan derivatives.

5.REFERENCES

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	A text book of Pharmaceutical Chemistry	Jeyashree Gosh	2014	S. Chand and Company, New Delhi
2	An introduction to Medicinal Chemistry	Patrick, Graham L	2009 (4)	Oxford University Press, New Delhi

Reference Book:

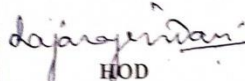
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Medicinal Chemistry	G.R.Chatwal	2002	Himalaya Publishing House, New Delhi

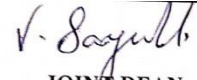
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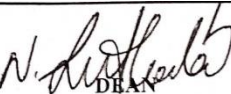
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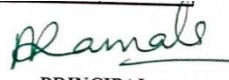
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UCH - SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 11 DEPARTMENT OF CHEMISTRY
DIPLOMA PROGRAMME
DIPLOMA IN ENVIRONMENTAL CHEMISTRY

1.COURSE TITLE : ENVIRONMENTAL CHEMISTRY

2.OBJECTIVES OF THE COURSE

- To study the basic instrumental methods
- To get knowledge of spectroanalytical methods
- To learn about chromatography techniques
- To study about electroanalytical methods
- To understand radio analytical techniques

3.OUTCOMES

- On the completion of the course the student will be able to
- Get knowledge about instrumental methods.
 - Acquire the knowledge about spectroanalytical methods.
 - Understand the chromatographic techniques.
 - Know the electroanalytical methods.
 - Get idea about Measurement of radioactivity.

4.SYLLABUS

Unit I - Basics of Measurement

Classification of instrumental methods- signals and noise- sources of noise- noise reduction- sensitivity and detection limit- calibration of instrumental methods calibration curves- standard addition and internal standard methods – theory.

Unit II - Spectroanalytical Methods

Electromagnetic radiation- properties, emission and absorption of radiation - Fluorescence and Phosphorescence -Atomic absorption and emission spectrometry- principle and instrumentation- ICP source- Fluorimetry, nephelometry and turbidimetry- principle and instrumentation: Ultraviolet-visible spectrophotometry principle and instrumentation. Beer’s law.

Unit III- Chromatographic Methods

Classification- general theory- column efficiency and resolution, band broadening-evaluation methods- quantitative determination- Principle and instrumentation of Gas chromatography, TLC and HPLC- Ion exchange chromatography and size exclusion chromatography- Mass spectrometry.

Unit IV - Electro analytical Methods

Potentiometry- electrochemical cell, reference electrodes, Glass electrode-Measurement of pH .Potentiometric titrations- Ion – selective electrodes. Conductometry- electrolytic conductivity- specific, equivalent and molar conductance- Conductance cells, conductivity meters- Conductometric titrations- Coulometry and polarography.

Unit V- Radio analytical and other methods

Particles emitted in radioactive decay- Measurement of radioactivity- Ionization chamber, proportional counter, scintillation counter and Geiger counter- Isotopic dilution analysis and activation analysis-NDIR for CO analysis, chemiluminescent analyzer for NOx, fluorescent analyzer for SO2, flow injection analysis and CHN analyzer.

5.REFERENCES:

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Instrumental Methods of Analysis	H.H. Willard, L.L Merit, J.A. Dean and F.A. Settle	1986	CBP Publishers and Distributors, New Delhi
2	Vogel’s Textbook of Quantitative Chemical analysis	J. Mendham, R.C Denney, J.D Barnes and M.Thomas	2002 (6)	Pearson Education Ltd New Delhi

Reference Book:

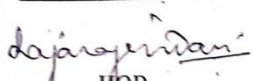
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Principles of Instrumental Analysis	- D.A.Skoog, D.M, West and T.A Nieman	2004 (5)	Thomson Asion (P) Ltd. Singapore,

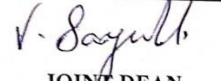
6.ELIGIBILITY: Minimum +2 (Open to all on their options)

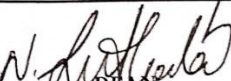
7.DURATION: 65 Hours (2Semester)

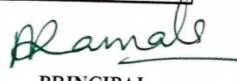
8.EXAMINATION/ EVALUATION COMPONENTS

Internal (40)	External (60)
Average of two tests = 20 marks Assignment 1 = 5 marks Quiz 1 = 5 marks FV / Case study / Record = 10 marks	Section A – True / False – 10 marks Section B – 5 out of 8 (4 marks) = 20 marks Section C- 3 out of 5 (10 marks) = 30 marks


HOD
IT.V.RAJA RAJESWARI


JOINT DEAN
DR(SMT)V.SANGEETHA

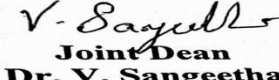

DEAN
SMT.N.LAVANYA

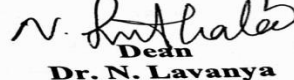

PRINCIPAL
DR(SMT).N.KAMALA

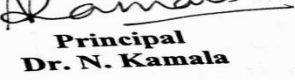
SRI SARADA COLLEGE FOR WOMEN
(An Autonomous Institution)
UG Courses-B.Sc., Computer Science [2019-2022] -Programme Structure

Sem	Part	Category	Course Code	Course title	Hours/week			Credits	Page No.
					L	P	T		
1	I	Language	19P1TB1/19P1SB1	Tamil/Sanskrit	6	0	6	4	
1	II	Language	19P2EB1	General English I	6	0	6	4	
1	III	Core I	19UCSC11	Computer Fundamentals in C Programming	4	0	4	4	3
1	III	Allied	19UCSA11	Discrete Mathematics	4	0	4	3	4
1	III	Core Practical	19UCSCL11	C Programming Practicals	0	4	4	4	5
1	III	Allied Practical	19UCSAL11	Computer Basics Practicals	0	4	4	4	6
1	IV	Common	19UCES11	Environmental Studies	2	0	2	2	
Total Number Of Papers= L+P= 7					22	8	30	25	
2	I	Language	19P1TB2/19P1SB2	Tamil/Sanskrit	6	0	6	4	
2	II	Language	19P2EB2	General English II	6	0	6	4	
2	III	Core II	19UCSC21	C++ Programming	4	0	4	4	7
2	III	Allied	19UCSA21	Fundamentals of Digital Design	4	0	4	3	8
2	III	Core Practical	19UCSCL21	C++ Practicals	0	4	4	4	9
2	III	Allied Practical	19UCSAL21	Open Source Practicals	0	4	4	4	10
2	IV	Common	19UCVE21	Value Based Education	2	0	2	2	
Total Number Of Papers= L+P= 7					22	8	30	25	
3	III	Core	19UCSC31	Core Java	4	0	4	4	11
3	III	Core	19UCSC32	Fundamentals of Computer Architecture	4	0	4	4	12
3	III	Core	19UCSC33	Internet Programming	4	0	4	4	13
3	III	Allied	19UCSA31	Data Structure	4	0	4	3	14
3	IV	NME	19UNCS3A	Fundamentals of Programming Design and Internet	2	0	2	2	15
			19UNCS3B	Programming in C					16
3	III	Core Practical	19UCSCL31	Java Programming Practicals	0	4	4	2	17
3	III	Allied Practical	19UCSAL31	Data Structure Practicals	0	4	4	2	18
3	III	Skill Based Practical	19UCSSL31	Python Practicals	0	4	4	2	19
3	IV	Common	19UCYP31	Yoga Theory and Practices	0	0	0	1	
Total Number Of Papers= L+P= 8					18	12	30	24	
4	III	Core	19UCSC41	Visual Basic	4	0	4	4	20
4	III	Core	19UCSC42	Programming with PHP	4	0	4	4	21
4	III	Core	19UCSC43	Information Security	4	0	4	4	22
4	III	Allied	19UCSA41	Microprocessor and Microcontrollers	4	0	4	3	23
4	III	NME	19UNCS4A	Fundamentals of Computer	2	0	2		24
			19UNCS4B	HTML					25
4	III	Core Practical	19UCSCL41	Visual Basic Practicals	0	4	4		26
4	III	Allied Practical	19UCSAL41	Programming with PHP Practicals	0	4	4		27
4	III	Skill Based Practical	19UCSSL41	Internet Programming Practicals	0	4	4		28
4	IV	Common	19UDLT41	Digital Learning Tools	0	0	0	1	29
4	IV	Common	19UNCC41/19UNSS41/19UYRC41/19URRC41/19UPESY41/19UCCC41/19USSS41/19UCGC41	Extension Activity (NSS/NCC/YRC/RRC/PESSY/ CCC/SSS/CGC)	0	0	0	1	
Total Number Of Papers= L+P= 8					18	12	30	25	
5	III	Core	19UCSC51	Software Engineering	4	0	4	4	30
5	III	Core	19UCSC52	Computer Graphics and Visualization	4	0	4	3	31
5	III	Core	19UCSC53	ASP.NET Programming	4	0	4	3	32
5	III	Elective	19UCSE51	Cloud Computing	4	0	4	3	33
			19UCSE52	AD-HOC and Sensor Networks					34
			19UCSE53	Mobile Computing					35
			19UCSCL51	ASP.NET Practicals					36
5	IV	Common	19UCPD51	Personality Development	2	0	2	1	
5	III	Core	19UCSCP51	Computer Science for Competitive Examinations and Project	0	6	6	6	
Total Number Of Papers= L+P= 7					18	12	30	22	
6	III	Core	19UCSC61	Operating System	4	0	4	4	40
6	III	Core	19UCSC62	Data Communication and Networks	4	0	4	3	41
6	III	Core	19UCSC63	Data Mining Techniques	4	0	4	3	42
6	III	Core	19UCSC64	Database Management Systems	4	0	4	4	43
6	III	Elective	19UCSE61	Software Testing	4	0	4	3	44
			19UCSE62	Internet of Things					45
			19UCSE63	Cryptography and Network Security					46
6	III	Core practical	19UCSCL61	Graphics and Multimedia Practicals	0	5	5	2	47
6	III	Core practical	19UCSCL62	RDBMS Practicals	0	5	5	2	48
Total Number Of Papers= L+P= 7					20	10	30	21	
					118	62	180	142	


Dr. V. Vallinayagi
HOD


Dr. V. Sangeetha
Joint Dean


Dr. N. Lavanya
Dean


Dr. N. Kamala
Principal

SRI SARADA COLLEGE FOR WOMEN
(An Autonomous Institution)

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

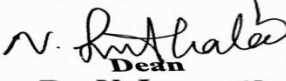
Institution recognised under 2(f) and 12(B) of UGC & Reaccredited with — A grade by NAAC (A branch of Sri Ramakrishna Tapovanam, Tirupparaithurai)
Ariakulam, Thoothukudi NH, Maharaja Nagar Post, Tirunelveli- 627011

Programme Outcome:

- ✓ The syllabi of the course for a good platform for higher level course in computer science.
- ✓ The course is designed to support automation and digitization in all walks of life.
- ✓ Provide exposure to students to latest tools & technologies in area of computer science.
- ✓ Acquaint with the contemporary trends in industrial/research settings and thereby innovate novel solutions to existing problems.
- ✓ Enhance skills and adapt new computing technologies for attaining professional excellence and carrying research.

Programme Specific Outcome:

- ✓ Computer Science graduates are competent in academic, Research, Industry, Government, Private and Business organizations with the acquired programming skills.
- ✓ Demonstrate understanding of the principles and working of the hardware and software aspects of computer systems.
- ✓ Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing, IoT and data analytics of varying complexity.
- ✓ Develop technical project reports and present them orally among the users.
- ✓ The software and IT companies are the major employers of Computer Science graduates.

 HOD Dr. V. Vallinayagi	 Joint Dean Dr. V. Sangeetha	 Dean Dr. N. Lavanya	 Principal Dr. N. Kamala

UCS – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011
SEMESTER I

Programme: UG	Subject :B.Sc., Computer Science
Course code: 19UCSC11	Course Title: Computer Fundamentals in C Programming
Category: Core I	Credits: 4

Objectives:

- 1. To obtain knowledge about the structure of the programming language C
- 2. To develop the program writing and logical thinking skill.

Units	Detailed Syllabus	Hours
1	Introduction: C Declarations:- Character Set – C tokens – Keywords and Identifiers – Identifiers – Constants – Variables – Data types – Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables – Defining Symbolic Constants – Declaring Variable as Constant. Operators and Expressions:- Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Expressions. Managing Input and Output Operations:-getchar() – putchar() – scanf() – printf().	(14L)
2	Control Structures :Decision Making and Branching:- Decision Making with IF Statement – Simple IF statement – The IF...Else Statement – Nesting of IF...Else Statements – The ELSE IF ladder – Rules for Indentation -- The Switch Statement – Rules for Switch Statement - The ?: Operator – The GOTO statement. Decision Making and Looping:- The WHILE Statement – The DO Statement – The FOR statement.-- Sentinel Loop – Structured Programming.	(10L)
3	Arrays: One-dimensional arrays – Declaration of One-dimensional arrays – Initialization of One-dimensional arrays - Two-dimensional arrays – Initialization of Two-dimensional arrays – Multidimensional arrays. Character Arrays and Strings:- Declaring and Initializing String Variables – Reading Strings from Terminal – Writing Strings to Screen – String Handling Functions.	(10L)
4	Functions :User-Defined functions:- Need for User-defined functions – Definition of functions – Return Values and their Types – Function Calls – Function Declaration – Category of functions – No Arguments and No return values – Arguments but No return Values – Arguments with return values – No arguments but a return a value – Recursion – Passing Arrays to functions – Passing Strings to functions – The Scope, Visibility and lifetime of a variables. Structures and Unions:- Defining a Structure – Declaring Structure Variables – Accessing Structure Members – Structure Initialization – Arrays of structures – Arrays within Structure – Structure within Structures - Unions.	(14L)
5	Pointers And Files :Pointers: - Understanding pointers – Accessing the Address of a Variable – Declaring Pointer Variables – Accessing a variable through its pointer – Pointer Expressions –Pointers as function arguments.File Management in C: - Defining and Opening a file – Closing a File – Input/output Operations on files – Error Handling during I/O Operations – Random access to Files – Command Line Argument.	(12L)

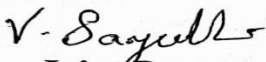
Text Book:

S.NO	Title of the Book	Author	Edition & Year	Publication
1	Programming in ANSI C	E Balagurusamy	6 th Edition	Tata McGraw Hill Publishing Company Limited.

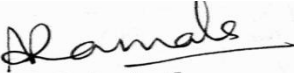
Reference Books:

S.NO	Title of the Book	Author	Edition & Year	Publication
1	Computer System and Programming in C	Manish Varhney, Naha Singh	First Edition	CBS Publishers and Distributors Pvt Ltd.
2	Introduction to Computer Science	ITL Education Solutions Limited	Second Edition,	Pearson Education
3	Computer Basics and C Programming	V. Rajaraman	-	PHI Learning Private Limited
4	Programming with C	Byron S Gottfried	Third Edition	Tata McGraw Hill Education Private Limited.


HOD
Dr. V. Vallinayagi


Joint Dean
Dr. V. Sangeetha


Dean
Dr. N. Lavanya


Principal
Dr. N. Kamala

UCS – BOS – SRI SARADA COLLEGE FOR WOMEN, TIRUNELVELI – 627011
SEMESTER - I

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSA11	Course Title: Discrete Mathematics
Category: Allied I	Credits: 3

Objectives:

1. To apply basic concepts for clear understanding of mathematical principles.
2. To solve practical problems.

Units	Detailed Syllabus	Hours
I	Set Theory-Basic concepts of set theory - Relations- Introduction to Relations – Binary relation – Classification of Relations – Composition of Relations – Inverse of Relation – Closure operation on Relations – Matrix representation of Relation - digraphs.	(12L)
II	Functions:Introduction to Functions – Addition and Multiplication of Functions - Classifications of Functions – Composition of Function – Inverse Function.	(12L)
III	Mathematical Logic: Introduction – Statement (Propositions) – Connectives -Laws of Formal Logic –Basic Set of Logical operators/operations - Propositions and Truth Tables – Algebra Propositions - Tautologies and Contradictions – Logical Equivalence – De Morgan’s Laws - Logical Implication – Normal Forms – Conjunctive Normal Forms – Disjunctive Normal Forms.	(12L)
IV	Matrix Algebra:Introduction – Definition of a Matrix - Types of Matrices – Operations on Matrices – Related Matrices – Transpose of a Matrix – Symmetric and Skew-symmetric Matrices – Complex Matrix – Conjugate of a Matrix – Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix – Singular and Non-singular Matrices – Adjoint of a Square Matrix – Properties of Adjoint of a Matrix – Properties of Inverse of a Matrix.	(12L)
V	Graph:Introduction – Graph and Basic Terminologies – Types of Graphs – Connected Graphs – Directed and Undirected graphs - Sub Graph and Isomorphic Graph – Operations on Graphs – Representation of Graph - Adjacency Matrix and Incidence Matrix Graph Representation. Trees: Introduction – Pendant Vertices in Trees – Distance and Centers in a Tree – Rooted Tree - Binary Tree – Spanning Tree – Operations on Tree.	(12L)

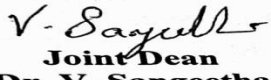
Text Book:

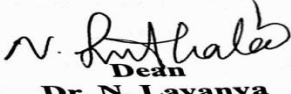
S.No	Title of the Book	Author	Edition, Year	Publication
1	Discrete Mathematics	Swapan Kumar Chakraborty and BikashKantiSarkar	First Edition	Oxford University Press.

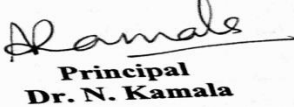
Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Discrete Mathematics	Seymour Lipschutz and Marc Lars Lipson	Third Edition	Tata McGraw Hill Education Private Limited.
2	Discrete Mathematical Structures with Applications to Computer Science	J.P.Tremblay, R.Manohar	First Edition	TMH Edition


HOD
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Dr. N. Lavanya


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UCS – BOS – SRI SARADA COLLEGE FOR WOMEN, TIRUNELVELI – 627011

SEMESTER I

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSCL11	Course Title: C Programming Practicals
Category: Core Practical – I	Credits: 4

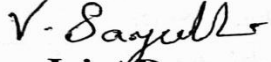
Objectives:

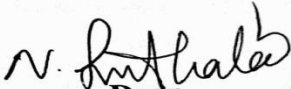
- 1. To develop skills in developing algorithms through programming language C.
- 2. To explore the features of C by applying sample programs.

Each exercise should be completed within two hours. It is compulsory to complete all the exercises given in the list in the stipulated time.

- 1. To find all possible roots of a quadratic equation using if statement
- 2. Program to check vowel or consonant using switch case statement
- 3. Evaluate Sine series using while loop
- $\sin(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \dots + \frac{x^n}{n!}$
- 4. Sort a list of numbers in ascending order
- 5. Search an element in an array
- 6. Factorial of the given number
- 7. Fibonacci Series
- 8. Check the given string is palindrome or not
- 9. Find the binomial coefficient (nCr) value using recursion
- 10. Multiply two matrices (check for compatibility)
- 11. Transpose of a matrix
- 12. Find the sum of 'n' numbers by making function call
- 13. Alphabetical sorting (passing array as argument to function)
- 14. Exchange values using pointers and function
- 15. Prepare the student details using structure
- 16. Prepare mark sheet using file


HOD
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Dean
Dr. N. Lavanya


Principal
Dr. N. Kamala

SEMESTER I

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSAL11	Course Title: Computer Basics Practicals
Category: Allied Practical – I	Credits: 4

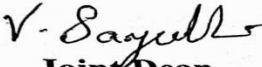
Objective:

To develop skills in office automation by applying sample programs.

Each exercise should be completed within two hours. It is compulsory to complete all the exercises given in the list in the stipulated time.

1. Usage of Numbering, Bullets, Indents and Headers in a Word Document
2. Design a wedding invitation in Word Document
3. Usage of Spell Check, Find and Replace
4. Prepare a semester wise mark statement for a computer class of 20 students using any spreadsheet’ worksheet. Total, average and rank the student marks. Give proper headings. Make the column headings bold and italic.
5. Consider the sample employee worksheet and calculate their salary.
6. Use any spreadsheet to use mathematical, statistical and logical functions
7. Use any spreadsheet to plot a chart for marks obtained by the students (out of 5) vs. frequency (total number of students in class is 50).
8. Create a database for a Telephone Directory. Create a table named phone book with relevant fields. Enter a minimum of 10 records.
9. Create a student database and create validation rules for fields like age, date of birth, pincode etc.
10. Enter data to the student database using a form.
11. Create a query and add criteria to the query.
12. Create a tabular auto report.
13. Customize a report in report design.


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SEMESTER II

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSC21	Course Title: C++ Programming
Category: Core	Credits: 4

Objectives:

1.
- To understand the basic programming constructs of C++ Language
2.
- To explore the features of c++.

Units	Detailed Syllabus	Hours
1	Classes and Object:Introduction-Structures in c++-Classes in c++-Declaring Objects-the Public key word-the Private keyword- the Protected keyword-Defining Member Functions-Characteristics of Member Function-Outside member function inline-Rules of inline function-Data hiding or Encapsulation-Classes,Objects and Memory-Static Member Variables and Functions-Static objects- Array of objects-Objects as Function Arguments-Friend Functions- the Const Member Function-Local classes the Main()as a member function-Overloading member functions-Overloading Main() function-Bit fields and Classes.	(12 L)
2	Constructor and destructors:Introduction-Constructor and Destructor-Characteristics of Constructors and destructors-applications with constructors-constructors with arguments-overloading constructors-constructors with default arguments - copy constructors - the const objects- destructors-calling constructor and destructors-qualifier and nested classes- private constructor and destructor-dynamic initialization using constructor- dynamic operators and constructors-the main() as a constructor and destructor- program execution before main()- constructor and destructor with static members - local vs global objects.	(12 L)
3	Operator overloading and type conversion:Introduction-the keyword operator-overloading unary operator-operator return type -overloading binary operator-overloading with friend function-type conversion-rules for overloading operators.Inheritance:Introduction-access specifiers and simple inheritance-protected data with private inheritance-types of inheritance-single inheritance multilevel inheritance-multiple inheritances- hierarchical inheritance-hybrid inheritance-multi path inheritance.	(12 L)
4	Pointers and arrays:Introduction-pointer declaration-void pointers -wild pointers-pointer to class-pointer to objects-the this pointer-pointer to derived classes and base classes -pointer to members -accessing private member with pointers-arrays-characteristics of arrays-initialization of arrays using functions- arrays of classes. Binding,Polymorphism and virtual functions:Binding in c++-pointer to derived class objects-virtual functions-Rules for virtual functions-Pure virtual function-Abstract classes.	(12 L)
5	Files: Files stream classes-steps of file operations-checking for errors-finding end of a file-file opening modes-file pointers and manipulators-manipulators with arguments-sequential read and write operations-binary and ASCII files-random access operation-Command Line Arguments.Templates:Need for template-Definition of class template-Functions templates. Manipulating Strings: Introduction – Creating string objects – Manipulating string objects –Relational operations –String Characteristics – Accessing characters in strings-Comparing and swap.	(12 L)

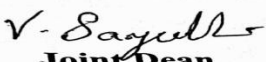
Text Books:

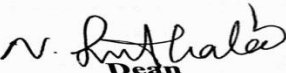
S.No	Title of the Book	Author	Edition, Year	Publication
1	Object-Oriented Programming with ANSI & Turbo C++	E.Balagurusamy	Fifth Edition 2012	Tata McGraw Hill Publishing Company Limited
2	Programming with C++	D.Ravichandran	Third Edition 2011	Tata McGraw Hill Education
3	Object-Oriented Programming with ANSI & Turbo C++	Ashok N.Kamthane	Second Edition 2009	Pearson Education

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	The Complete Reference C++	Herbert Schildt	Fourth Edition 2001	Tata McGraw Hill Education
2	Programming with C++	P.RadhaGanesan	Fourth Edition 2007	Scitech Publications


HOD
Dr. V. Vallinayagi


Joint Dean
Dr. V. Sangeetha


Dean
Dr. N. Lavanya


Principal
Dr. N. Kamala

SEMESTER II

Programme: UG	Subject: B.Sc.,Computer Science
Course code: 19UCSA21	Course Title: Fundamentals of Digital Design
Category: Allied	Credits: 3

Objective:

- 1. To understand the concept of digital systems.
- 2. To understand the various number systems and simplify Boolean functions.
- 3.To distinguish logical and combinational circuits.

Units	Detailed Syllabus	Hours
1	Number Systems:-Codes and Digital Logic Binary Number System – Binary to Decimal Conversion – Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers – The ASCII Code – The Excess-3 Code – The Gray Code. Digital Logic: The Basic gates NOT, OR , AND – Universal Logic Gates NOR,NAND – AND-OR Invert Gates.	(12L)
2	Combinational Logic Circuits Boolean Laws and Theorems – Sum of Products Method – Truth Table to Karnaugh Map – Pairs, Quads and Octets – Karnaugh Simplifications – Don’t Care Conditions – Product of Sums Method – Product of Sums Simplification. Programmable Logic Unit:-Programmable Logic Array – Programmable Array Logic – Sequential Programmable Devices	(12L)
3	Data Processing and Arithmetic circuits Multiplexers – De-multiplexers – 1-of-16- Decoders –BCD-to-Decimal Decoders – SevenSegment decoders – Encoders – Exclusive-OR gates. Arithmetic Circuits: Binary Addition – Binary Subtraction – Unsigned Binary Numbers – Sign-Magnitude Numbers – 2’s Complement Representation – 2’s Complement Arithmetic.	(12L)
4	Flip-Flops RS Flip Flops – Edge Triggered RS Flip Flops - Edge Triggered D Flip Flops - Edge Triggered JK Flip Flops – JK Master Slave Flip Flops.. Counters:- Asynchronous Counter – Ripple Counter and 3-bit Up/Down Counter only – Decoding Gates – Synchronous Counter – MOD 8 counter and 4-bit Up/Down counters only – Decade Counter – Preset – able counters	(12L)
5	Registers Types of Registers – Serial in serial out – serial in parallel out – parallel in serial out – parallel in parallel out– Universal Shift Register. Digital Integrated Circuits:- Bipolar-Transistor Characteristics – RTL and DTL Circuits – Transistor and Transistor Logic – Emitter-Coupled Logic – Metal-Oxide Semiconductor – Complementary MOS – CMOS Transmission Gate Circuits.	(12L)

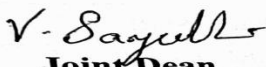
Text Books:

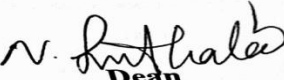
S.No	Title of the Book	Author	Edition, Year	Publication
1	Digital Principles and Applications	Albert Paul Malvino& Donald P.Leach	Seventh Edition	Tata McGraw Hill Education Private Limited
2	Digital principles and system design	AP Godse DA godse	2011	Technical publication
3	Digital computer electronics	Malvino brown	Third edition	Tata McGraw Hill Education Private Limitedd

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Fundamentals of Digital circuit	A.Anand Kumar	Second Edition	PHI Learning Pvt.Ltd
2	Digital design	M.Morris Mano	Third Edition 2005	Pearson Education


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UCS – BOS – SRI SARADA COLLEGE FOR WOMEN, TIRUNELVELI – 627011

SEMESTER II

Programme: UG	Subject: B.Sc.,Computer Science
Course code: 19UCSCL21	Course Title: C++ Practicals
Category: Core Practical – II	Credits: 4

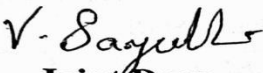
Objective:

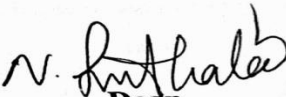
To gain knowledge about the Object Oriented Programming Concepts and C++ streams, inheritance, overloading of operators, functions, constructors, file handling and templates concept of C++ programming by implementing sample programs.

Each exercise should be completed within three hours. It is compulsory to complete all the exercises given in the list in the stipulated time.

- 1) Program with a Class and Member Functions.
- 2) Program to Overload Function.(minimum three geometric figures)
- 3) Program to implement Parameterized Constructor.
- 4) Program to implement Friend Function (minimum two classes)
- 5) Program to Overload Unary Minus Operator.
- 6) Program to Overload Binary Plus Operator.
- 7) Program to implement Multiple Inheritance for Family Details.
- 8) Program to implement Multilevel Inheritance for Bank Customer Details.
- 9) Program to implement Hierarchical Inheritance for Students Details.
- 10) Program to implement Virtual Function.


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SEMESTER II

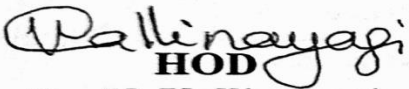
Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSAL21	Course Title: Open Source Practicals
Category: Allied Practical – II	Credits: 4

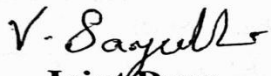
Objective:

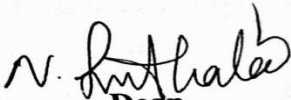
To understand the features of Linux utilities and shell scripting language.

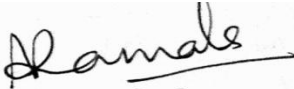
Each exercise should be completed within three hours. It is compulsory to complete all the exercises given in the list in the stipulated time.

1. Use any text editor in linux(say vi) to enter a C program to find the largest of three numbers, compile using gcc and display the output.
2. Use any text editor in linux(say vi) to enter a C program to find the factorial of a given number, compile using gcc and display the output.
3. Linux commands a. ls, mkdir, rmdir, cd, pwd, find, du(Directory oriented) b. cat, cp, rm, mv, wc (File oriented) c. ps, kill, batch, grep(Process oriented) d. write, mail, wall (Communication oriented)
4. Linux commands a. date, who, who am i, man, cal, echo, bc(General purpose) b. Pipe, Filter
5. Write a shell script to display date in the mm/dd/yy format, time, username and current directory.
6. Write a shell script to find the sum of digits of a given number.
7. Write a program to generate Fibonacci series.
8. Write a program to check whether given string is palindrome or not
9. Write a shell script to find factorial of a given integer.
10. Write a shell script to generate mark sheet of a student. Take 3 subjects, calculate and display total marks, Percentage and Class obtained by the student.


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SEMESTER III

Programme: UG		Subject: B.Sc., Computer Science	
Course code:19UCSC31		Course Title: Core Java	
Category: Core		Credits: 4	
Objectives: 1. To understand the basic programming constructs of Java language 2. To explore the features of Java by applying to solve problems.			
Unit	Detailed Syllabus	Outcomes	Hours
1	Data types, Variables and Array: Primary types - Integers - Floating point types-Characters - Booleans - A Closer Look at Literals - Variables - Types conversion and Casting - Automatic type Promotion in Expressions - One Dimensional Arrays - Multidimensional Arrays. Operators: Arithmetic Operators - Bitwise operators - Relational operators - Boolean Logical Operators - Assignment Operator - Conditional Operators - Operator Precedence - Using Parentheses.	After having learnt this unit, The students can 1. understand the Data types and how to declare variables and to create arrays. 2. implement the arrays in programming. 3. analyze the types of operators	12
2	Introducing Classes: Class Fundamentals - Declaring Objects - Assigning Object Reference Variables - Introducing Methods - Constructors - Garbage Collection - finalize() Method. A Closer Look at Methods and Classes: Overloading Method - Using Object as Parameters-Argument Passing - Returning Objects - Recursion - Introducing Access Control - Understanding Static - Introducing final - Nested and Inner classes - String Class - Using Command line arguments. Inheritance: Inheritance Basics - Using super - Creating Multilevel Hierarchy - Method Overriding - Dynamic Method Dispatch - Using Abstract Classes- Using final with Inheritance	The students can 1. understand the basic elements of a class. 2. know how a class can be used to create objects. 3. understand the methods including constructors and parameters.	12
3	Packages and Interfaces: Packages - Access Protection - Importing Packages - Interfaces. Exception Handling: Introduction - Exception Types - Using try and catch - Multiple catch Clauses - Nested try Statements - throw- throws – finally. Multithreaded Programming: Java Thread Model- MainThread-Creating a Thread-Creating Multiple Threads - Using is Alive() and join() - Thread Priorities.	The students can 1. use the interface, a set of methods can be implemented by one or more classes. 2. understanding the ways of handling compile time errors. 3. implement the concept of multithreading.	12
4	The Applet Class: Basics - Architecture - Skeleton – Display Methods - Requesting Repainting - HTML APPLET tag - Passing Parameters to applet. Event Handling: Event Handling Mechanisms - Delegation Event Model - Event Classes- Sources of Events - Event Listener Interfaces - Handling Mouse Events and Keyboard Events	The students can 1. able to write applet program to provide graphic content. 2. apply an applet coding in java program is used to add small, interactive components to a web page. 3. apply an applet coding in java program is create simple interactive webpage.	12
5	Introducing the AWT: AWT Classes - Window fundamentals- Working with Frame Windows - Working with Graphics - Working with Color- Working with Fonts. Using AWT Controls: Controls Fundamentals - Labels - Using Buttons - Applying Check Boxes - Check Box Group - Choice Controls- Using Text field- Using a Text Area -Understanding Layout Managers - (Flow Layout Only) - Menu Bars and Menus- Dialog Boxes.	The students can 1. create and manage GUI applications. 2. understand the different types of controls in Java AWT program. 3. gather knowledge about AWT classes.	12

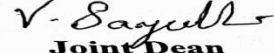
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Java, The Complete Reference	Herbert Schildt	2011(8)	Tata McGrawHill Education
2.	Java Programming A Practical Approach	C.Xavier	2011	TataMcGrawHilleducation
3.	Programming in Java	Sachin Malhotra, Saurbh Choundary	2018(2)	OXFORD University Press

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Programming with Java	C.Muthu	2011 (2).	Vijay Nicole Imprints Private Ltd.
2.	Programming with Java	E.Balagurusamy	(2)	TataMcGrawHilleducation


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UCS – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011
SEMESTER III

Programme: UG	Subject: B.Sc., Computer Science
Course code:19UCSC32	Course Title: Fundamentals of Computer Architecture
Category: Core	Credits: 4

Objectives:

1.
- To gain knowledge about the architecture of computer
2.
- To understand the concepts of CPU, ALU Design, I/O Instruction format and different processors.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Combinational circuits-multiplexer-registers-bus and memory transfer-Arithmetic, logic and shift Micro operations. Basic Computer Organization: Instruction Codes - Computer Registers - Computer Instructions - Timing and Control - Instruction Cycle - Control Memory -Address Sequencing	The students can 1. learn basic computer organization, design and micro-operations 2. learn the types and functions of computer register. 3. understand the concept of control memory.	12
2	Central Processing Unit: General Register Organization - Stack Organization - Instruction Formats-Addressing Modes- Program control- Data transfer and manipulation.	The students can 1. understand the knowledge of CPU functioning and computer arithmetic. 2. compare CPU implementations,I/O methods etc. 3. learn the types of addressing modes in memory.	12
3	Computer Arithmetic: Hardware Implementation and Algorithm for Addition, Subtraction, Multiplication, Division-Booth Multiplication Algorithm - Floating Point Arithmetic-decimal arithmetic unit	The students can 1. understand the computer arithmetic. 2. understand the concept of hardware implementation and algorithms used for addition, subtraction etc. 3. distinguish between signed magnitude arithmetic and floating point arithmetic.	12
4	I/O Organization and Memory Organization: I/O Interface - Asynchronous Data Transfer - Modes of I/O Transfer – Priority Interrupt - Direct Memory Access - Memory Hierarchy - Main Memory – Auxiliary Memory - Associative Memory - Cache Memory - Virtual Memory	The students can 1. learn the method of asynchronous data transfer. 2. categorize memory organization and explain the function of each element of a memory hierarchy. 3. understand the concept of priority interrupts.	12
5	RISC, CISC Characteristics - Parallel Processing - Pipe Lining - vector processing -Array Processors-Characteristics of Multi processors - Interconnections structures.	The students can 1. learn the concepts of parallel processing, pipelining 2. discuss about vector processing in RISC and CISC. 3. explain how the multiprocessors can work.	12

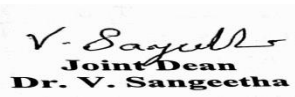
Text Books

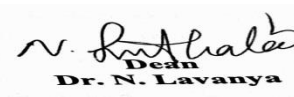
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Computer System Architecture	M. Morris Mano.	2008 (3)	Pearson Education.
2.	Computer Architecture	Nirmala Sharma,	2009 (1)	University Science Press.
3.	Computer Architecture	Nicholos Carter,	2006	TMH Publication

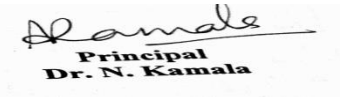
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Computer Architecture and Organization	John P.Hayes	(3)	MC Graw Hill.
2.	Computer Organization and Architecture	William Stallings	(7)	As Oke K.Ghosh Prentice – Hall of India.


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SEMESTER III

Programme: UG	Subject: B.Sc., Computer Science
Course code:19UCSC33	Course Title: Internet Programming
Category: Core	Credits:4

Objectives:

1.
- To study the basic concepts of Internet
2.
- Understand the services provided by the Internet.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: What is internet?-History of Internet -Internet Services And Accessibility-Uses of the internet-Protocols - Web concepts-Client/Server model at the web-retrieving data from the web. Internet Protocols: Introduction-Internet Protocols-Transmission Control Protocols-User datagram protocols- Host names - Internet Applications and Application Protocols.	The students can 1. explain how the client-server model of Internet programming works. 2 .compare the advantages and disadvantages of the core Internet protocols. 3. differentiate TCP/IP protocols	12
2	HTML: Introduction - SGML-DTD-DTD Elements-Attributes - Outline of an HTML Document-Head Section -Body Section-HTML forms . Dynamic HTML: Introduction - Cascading Styles Sheets-DHTML Document Object Model and Collections-Event Handling-Filters and Transitions.	The students can 1. implement the basic HTMLtags. 2. use simple features ofDHTML 3. demonstrate knowledge of DOM objects that interacts withserver-based programs	12
3	Javascript: Introduction -Language elements-objects of Javascript-other objects -arrays. VBSCRIPT: Introduction-Embedding VBScript code in an HTML Document-Comments -Variables -Operators - Procedures-Conditional Statements - Looping Constructs-Objects and VBScript -Cookies.	The students can 1. understand the looping and control structures in VBScript andJavaScript 2. create and use JavaScriptprograms. 3. apply their knowledge to create interactive websites usingVBScript.	12
4	Introducing DHTML: Introduction-cascading style sheets-properties of tag-other style properties-inline style sheets-embedded style sheets-Extended style sheets-grouping-inheritance-contextual selectors-positioning-pointers.	The students can 1. Understand the features ofDHTML 2. Manipulate and comparevariables. 3. Implement cascading sheet in HTML statements.	12
5	Features of VB script –version-whitespace Line space-formatting-VB script in Internet Explorer-in HTML file-VB script in placement QTP-variables-scope of values-declaration-operators-decision making operators.- vbscript events-cookies-strings-arrays	The students can 1. Create VBscriptprograms thatuse various Condition Statement & Loops 2. Differentiate the break and continue statements 3. Process an array withloops	12

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Web Technology	N.P Gopalan , J.Akilandeswari	2010	PHI
2	The Complete Reference PHP	Steven Holzner	2015	McGrawHill Education
3	VBSCRIPT scripting language	www.tutorialspoint.com	2016	Wiley

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Web Technologies	Jaffrey C.Jackson	2014	Pearson Edition
2.	Internet & Web Technology	Raj Kamal	(11)	Tata MC GrawHill

SEMESTER III

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSA31	Course Title: Data Structure
Category: Allied	Credits: 3

Objectives:

1.
- To understand the concepts of basic data structures such as stack, Queues and Linked list.
2.
- To have general understanding of the network structures through trees and graph.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction and Overview: Definition - Concept of Data Structures - Overview of Data Structures - Implementation of Data Structures - Organization of the Book. Arrays and Tables: Definition - Terminology - One - Dimensional Array - Multidimensional Array. Tables: Rectangular Tables - Jagged Tables - Inverted Tables - Hash Tables - Problem to Ponder	The students can 1. develop knowledge of Basic data Structures for Storage and retrieval of Ordered/Unordered data. 2. represent and Manipulate One dimension and Two dimensional Arrays. 3. categorize and Analyze different Tables.	12
2	Linked Lists: Definition - Single Linked List - Circular Linked List - Double Linked List - Circular Double Linked List - Application of Linked Lists - Memory Representation - Boundary Tag System - Deallocation Strategy	The students can 1. construct and Implement the concepts of Linked Lists. 2. demonstrate the various application of Linked List. 3. explore Memory representation and deallocation Strategy	12
3	Stacks and Queues : Introduction - Definition - Representation of a Stack - Operations on Stacks - Applications of Stacks . Queues: Introduction - Definition - Representation of Queues - Various Queue Structures	The students can 1. represent Stack and analyze operations of Stack. 2. explain Working principle of queue. 3. demonstrate the Various Queue structures.	12
4	Trees: Basic Terminologies - Definition and concepts - Representations of Binary Tree - Operations on a Binary Tree - Types of Binary Trees - Expression Tree - Binary Search Tree - Heap Trees.	The students can 1. explain Basic Terminologies and concepts of Binary Tree. 2. design Binary Tree and implement operations on a binary Tree 3. implement appropriate Binary tree for given problem.	12
5	Graphs: Introduction - Graph Terminologies - Representation of Graphs - Operations on Graphs - Application of Graph Structures. Sorting Techniques: Quick Sort - Merge Sort.	The students can 1. design and Apply Non-linear data structure (Graph). 2. implement appropriate sorting/Searching Technique for given Problem. 3. determine and analyze the complexity of the given algorithm.	12

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Classic Data Structures	Debasis Samantha	2009 (2)	PHI Learning Private Limited
2.	Data Structures, A pseudo code approach with C++	Richard F. Gilberg and Behrouz A Forouzon	2001 (1)	Thomson Publications.
3.	Data Structures Using C++	Varsha H. patil	2012 (1)	OXFORD University Press

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Data Structures	Robert L. Kruse	1984	Prentice Hall International
2.	Data Structures	Seymour Lipschutz	2014 (1)	Mc Graw Hill Education

SEMESTER III

Programme : UG	Subject: B.Sc., Computer Science
Course code: 19UNCS3A	Course Title: Fundamentals of Programming Design and Internet
Category: NME	Credits:2

Objectives:

1.
- To study the basic concepts of Programming
2.
- Understandthe structuresofprogramming constructs

Unit	Detailed Syllabus	Outcomes	Hours
1	Computer Program: Introduction – Developing a program – Algorithm – Flowchart – Decision Tables.	The student can: 1. realize the use of computerprograms. 2. demonstrate the problem solving skills by developing algorithms to solve in acomputer program. 3. design programs according to specifications by creating flow charts and decis iontables.	6
2	Program Testing and Debugging–Program Documentation– Programming Paradigms: Unstructured programming, Structured programming and Object Oriented Programming–Characteristics of a Good Programming.	The student can: 1. implement a simple program by writing the code, testing the code and debugging the program. 2. integrate the use of structured, unstructured and Object OrientedProgramming 3. understand the characteristics of good programming	6
3	Computer Languages: Evolution of Programming Languages – Classification of Programming Languages– Generation of Programming Languages– Features of a Good Programming language.	The student can: 1. realize the evolution of programming languages 2. categorize different programming languages and theiruses 3. demonstrate the features of good programminglanguage	6
4	The Internet – Introduction-From computers to the Internet- Advantages of Internet-Major Internet services- Hardware and software in the Internet age- Evolution and growth of the Internet: Birth of the Internet-Current networking technologies.	The studentcan: 1.understand the growth of the Internet 2.realize the advantages of Internet andMajor Internetservices 3.explore the networking technologies.	6
5	Electronic Commerce: E-Business and E-Commerce– Types of business in the internet–M-Commerce- Marketing Strategies on the Web–Making Payments in Virtual Stores–Shopping in VirtualStores.	The student can: 1. define and differentiate various types ofE- business inInternet 2. evaluate the trends and patterns that will determine the future state ofE-commerce 3. explore Shopping in VirtualStores	6

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Introduction to Computer Science	ITL Education Solutions Limited	2011(2)	Pearson.
2.	The Internet A User’s Guide	K.L James	(2)	PHI
3.	Fundamentals of Computers	V.Rajaram	(5)	PHI

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Introduction to Computer Science	Gilbert Brands	2013	Createspace Independent Publication
2.	Introduction to Computers	Peter Norton	2005 (7)	TataMcGrawHilleducation


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SEMESTER III

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UNCS3B	Course Title: Programming in C
Category: NME	Credits: 2

Objective:

1.
- To obtain knowledge about the structure of the programming language C
2.
- To develop the program writing and logical thinking skill.

Units	Detailed Syllabus	Outcomes	Hours
1	C Declarations:- Introduction – Character Set – C tokens – Keywords and Identifiers – Identifiers – Constants – Variables – Data types – Declaration of Variables – initializing variables – dynamic initialization – type modifiers – type conversion – constant and volatile variables. Operators and Expressions:- Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Operator Precedence.	The students can 1.understand the concept of computer programming language. 2.define data types and use them in simple data processing applications. 3.understand the concept and types of operators.	6
2	Input and Output in C: Introduction – Formatted Functions – Flags, widths and Precision with Format String – Unformatted Functions – Commonly used Library functions. Decision Statements : Introduction – Simple IF statement – The IF...Else Statement – Nesting of IF...Else Statements – The ELSE IF ladder – The Break Statement – The Continue Statement – The Goto Statement – The Switch Statement.	The students can 1.analyze programming problems to choose when regular loops should be used. 2.understand the concept of conditional statements 3.choose the Loops and Decision Making Statements to solve the problem.	6
3	Loop Control:- Introduction –The WHILE Statement – The DO Statement – The FOR statement – Nested FOR Loops. Arrays :- Introduction – One-dimensional arrays – Declaration of One-dimensional arrays – Initialization of One-dimensional arrays – Array terminology -Two-dimensional arrays – Initialization of Two-dimensional arrays.	The students can 1. design , implement, test and debug programs that use loops and arrays. 2. Ability to work with arrays of complex objects. 3.gain the knowledge about types of arrays.	6
4	Strings and Standard functions:- Introduction – Declaring and Initializing String Variables – Display of strings in different formats – String Standard functions – String Conversion Functions.	The students can 1.Understand a concept of object thinking within the framework of functional model. 2. Gain knowledge about declaring and initializing and different formats of strings. 3.use different functions to convert the strings.	6
5	Functions:- Introduction – Basics of a function - Function definition – The Return statement Types of functions – Call by Value and Reference – Function as an argument – Function with operators – function and decision statements – function and loop statements – functions with arrays	The students can 1.use functions to solve the problem. 2.implement the programs with functions and arrays 3.understand the concept of call by value and call by reference.	6

Text Books:

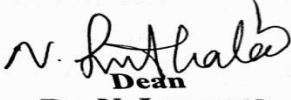
S.No	Title of the Book	Author	Edition, Year	Publication
1	Programming in C	Ashok Kamthane	Third Edition	Pearson Education

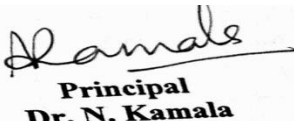
Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Computer Basics and C	V. Rajaraman	-	PHI Learning Private Limited
2	Programming with C	Byron S Gottfried	Third Edition	Tata McGraw Hill Education Private Limited.


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SEMESTER III

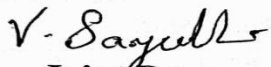
Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSCL31	Course Title: Java Programming Practicals
Category: Core Practical	Credits: 2

JAVA – LIST OF PRACTICAL

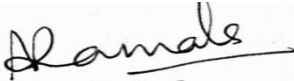
Write a Java Program

1. To check Palindromenumber.
2. To find the area of a square, rectangle and triangleby
- (i) OverloadingConstructor (ii) OverloadingMethod.
3. To find third largest number in anArray.
4. To remove duplicate element in anArray.
5. To create a package "Student" which contains the classes Emp and Memp. The data members of Emp are name ,emp_ id, category and Bpay. Write suitable constructors and methods to compute net pay of the employee. The class Memp contains themain method.
6. To create an interface called Demo, which contains a doubletypetypeconstant, and a method called area() with one double type argument. Implement the interface to find the area of acircle.
6. To create a thread using Threadclass.
7. To Design a calculator to perform only addition and division. It must contains three Buttons with lables +, / and =,and a Text Field to get input and display theresult.
8. To create a file menu with options New, Save and Close Edit menu with option cut, copy andpaste.
9. To create a window with a check box group with boxes for the colors, Violet,Indigo, Yellow, Orange, Red, Blue, and Green. Where the button is selected the background color must change accordingly.
10. To throw the followingexception,
- i)ArithmeticException. ii) Array Index Out ofBounds


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SEMESTER III

Programme: UG	Subject: B.Sc.,Computer Science
Course code: 19UCSAL31	Course Title: Data Structure Practicals
Category: Allied Practical	Credits:2

DATA STRUCTURES - LIST OF PRACTICAL

1. To write a C++ program to implement sequential search and binary search in array
2. To write a C++ program to implement linked list and perform the following operations

a. Add a node as first node

b. Add a node as last node
3. To write a C++ program to implement linked list and perform the following operations

a. Delete the first node

b. Delete the last node
4. a. To write a C++ program to implement a stack using linear list perform the push and pop operations.
- b. To write a C++ program to implement a queue using circular list and implement add and delete operations.
5. To write a C++ program to implement binary tree using linked and perform the following traversal.

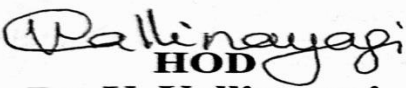
a. In order Traversal

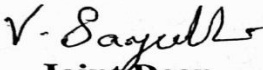
b. Pre order Traversal

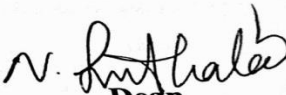
c. Post order Traversal
6. To write a C++ program to implement graph using Adjacency matrix and perform the following operations.

a. Depth First search

b. Breadth First search
7. To write a C++ program to implement merge sort.
8. To write a C++ program to implement Quick sort.


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SEMESTER III

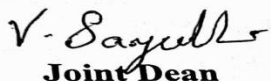
Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSSL31	Course Title: Python Practicals
Category: Skill Based Lab	Credits: 2

PYTHON-LIST OF PRACTICALS

Write a program

1.
- To add twonumbers.
2.
- To convert kilometres tomiles.
3.
- To print all the prime numbers in aninterval.
4.
- To find ASCII value of acharacter
5.
- To calculate the product of two compatiblematrices.
6.
- To solve quadratic equation.
7.
- To display acalendar.
8.
- To design a calculator.
9.
- To count the number of eachvowel.
10.
- To write a menu driven program, using user defined functions to find the area of rectangle,square, circle and triangle by accepting suitable input parameters fromuser
- 11
- To usefiles
- 12
- To write a program using Function
- 13
- 13 To write a program using Recursion
- 14
- 14 To write a program using Classes.
- 15
- 15 To write a program usingLists


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SEMESTER IV

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSC41	Course Title: Visual Basic
Category: Core	Credits: 4

Objectives:

1. Visual Basic Programming introduces event-driven Windows programming
2. Data types, operators, objects and properties, menus, procedures, control structures, and database file processing

Unit	Detailed Syllabus	Outcomes	Hours
1	Getting started with visual basic 6.0: Introduction to visual basic-Visual Basic 6.0 Programming Environment-Working with Forms- developing an application-variables, data types and modules-procedures and control structures-Array in visual basic-Additional Examples. Working with controls: Introduction-creating and using controls-working with controls arrays-additional examples.	The students can 1. code programs and develop application variables using Visualbasic 2. understand loops to do repetition 3. realize the working of VisualBasic controls	12
2	Menus, Mouse events and dialog boxes: Introduction- Mouse events-Dialog Boxes -additional examples. Graphics, MDI and Flex Grid: Introduction-Graphics for applications-Multiple Document Interface (MDI)-using the flex grid control-Additional Examples.	The students can 1. design/ develop programs with GUI interfaces 2. recognize the use of Multiple document Interface(MDI) 3. inculcate knowledge on simple application using visualbasic	12
3	ODBC and Data Access Objects: Evolution of computer architectures- data access options-additional examples. ODBC using Data Access objects and Remote Data objects: Open Database connectivity (ODBC)-Remote Data Objects- Additional Examples.	The students can 1. analyze the evolution of computer architecture 2. understand how to perform operations and store results using open database connectivity 3. explore data access options in ODBC	12
4	Data Environment and Data Report: Introduction-Data Environment Designer-Data Report-Additional examples. Object linking and embedding: Introduction-OLE visual basic controls Fundamentals-Using OLE container controls-Using OLE Automation objects-OLE Drag and Drop-Additional examples. Objects and classes: Introduction to objects-working with objects-classes and class modules-additional examples.	The students can 1. understand the use of additional or special visual basic controls 2. design and implement applications using an object-oriented methodology 3. develop VB program using OLE controls and objects	12
5	Built-in ActiveX controls: Working with Built in ActiveX controls-Additional examples. Working with ActiveX Data Objects: An overview of ADO and OLE DB-ADO object Model-Additional Examples.	The students can 1. realize the nature of Built-in ActiveX Controls 2. develop the understanding of ADO and OLE DB 3. create /develop programs in the areas related to ActiveX Controls	12

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Visual Basic 6.0 Programming	Content Development Group	2010 (1)	Tata McGraw-Hill publishing company limited, New Delhi.
2.	VISUAL BASIC 6 in Record Time	Steve Brown	-	BPB Publication
3.	VISUAL BASIC 6	Ground UP-GARY CORNELL	-	Tata McGraw Hill.

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Visual Basic 6	Roger Jennings	2007 (1)	G.C.Jain for Tech Media.
2.	Visual Basic 2005 Programming	Stevan Holzer	2006	Dream Tech Press.

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SEMESTER IV

Programme: UG	Subject: B.Sc., Computer Science
Course code:19UCSC42	Course Title: Programming with PHP
Category: Core	Credits: 4

Objectives:

1. Understand the usage of PHP and MySQL in dynamic web development.
2. Understand PHP language, data types, controls and can be able to setup the apache web server development.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introducing PHP : What is PHP?- What is MySQL? – Deciding on a Web Application Platform. Server- side Scripting Overview- Static HTML – Client Side Technologies – Server Side Technologies. PHP syntax and variables: Comments, Variable, The simple types.	The students can 1. understand the features of PHP 2. manipulate and compare variables. 3. embed PHP code in HTML statements.	12
2	Control structures and Functions: Boolean expressions- branching – Looping-Using Functions- Defining your own Functions-Functions and variable scope. Arrays: PHP arrays- Creating arrays – Retrieving values- Multidimensional Arrays.	The students can 1. create PHP programs that use various Condition Statement & Loops 2. Differentiate the break and continue s statements 3. Process an array with loops	12
3	File Handling : Opening files using fopen - looping over a files content with feof- reading text from a file using fgets - closing a file- reading character with fgetc- reading whole file with file_get contents reading a fle into into an array with file- checking if a file exists-fscanf -parse ini file- Getting file information with stat-fseek- copying files with copy- deleting files-writing to a file-reading and writing binary files – locking files.	The students can 1. create the websites. 2. understand the concepts of files. 3. understand the concepts of file reading and writing.	12
4	A Technical Tour of MySQL: An Overview of MySQL architecture- The MySQL Engine. MySQL Data Types : The need and Rationale for Data Types-MySQL Data types. MySQL operators Arithmetic Operators-Comparison Operators-Logical operators-Bit Operators.	The students can 1. learn and use open source management system MySQL. 2. use specialized operators.	12
5	MySQL and PHP: History and Evlouation – MySQL and PHP-Connection management- Query Execution – Result Set Processing – Error Handling – Ancillary Functions.	The students can 1. connect web pages with database. 2. handle the errors and debugging functions. 3. display web content.	12

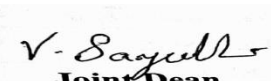
Text Books

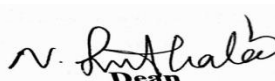
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	The Complete reference PHP	Steven Holzner	2008	Tata McGraw Hill
2.	The Complete Reference MYSQL	Vikram Vaswani	2004	Tata McGraw-Hill
3.	MySQL Crash course	Ben Forta	2006	SAMS

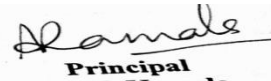
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	PHP 6 and MySQL 6 Bible	Steve Suehring, Tim Converse- Joyce Park	2017	Wiley India reprint
2.	Beginning MySQL	Robert Sheldon- Geoff Moes	2005	Wrox


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UCS – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011
SEMESTER IV

Programme : UG	Subject: B.Sc., Computer Science
Course code: 19UCSC43	Course Title: Information Security
Category: Core	Credits: 4

Objectives:

1. Information security focuses on the overview of information security.
2. The tools and technique used to secure information and the procedures and practices that must be followed by organizations to ensure information security.

Unit	Detailed Syllabus	Outcomes	Hours
1	Basics of information security: Introduction – Information – Need for information security – What is an information security breach – What needs to be secured? – Who needs to be concerned on information security? Aspects of information security – Goals of information security – Establishing a Security Equation. Information Security Threats: Introduction – What is a threat – Threats and Vulnerabilities – Threats, vulnerabilities and counter measures. - Types of threats	The students can 1. understand the basics of information Security and its breaches 2. identify the critical information and the extent it should be secured 3. realize the nature of the threats and the general status of common vulnerabilities	16
2	Viruses: Introduction – Who creates a virus and why? - How does a virus spread. Types of viruses – Boot sector virus – file virus. Prevention from virus attacks – Impact of a virus attack – Security measures to prevent virus attacks. Antivirus Software – Types of Antivirus software – Deploying Antivirus software. Virus detection and recovery – Virus detection – Recovery from virus attacks. Backups.	The students can 1. distinguish the types of viruses 2. examine the impact of virus attacks 3. realize the need for backups	16
3	Counter Measures – Authentication models used in cryptography – Implementation of cryptography. Biometrics – Biometrics Authentication process – Biometrics Authentication methods – Areas where Biometrics is used. Risk Management: Introduction – What is Risk management – Need for risk management - Benefits of risk management – Important roles in risk management – The risk management process. Risk Assessment – Identifying the assets at risk – Assessing the value of assets – identifying the threats to the assets – identifying the vulnerabilities in an organization. Risk Analysis.	The students can 1. create a good set of information security metrics 2. analyze the cryptographic techniques and biometric process 3. evaluate the principles of risk and define risk analysis and risk	16
4	Security Policies: Introduction – What is security policy – need for security policy – people who are affected by security policies – Role of management in implementing security policies - Components of a security policy – security policies and Trust. Security Policy Life Cycle – Prerequisites for creating a Security policy – Design and Creation – Implementation – Compliance – Monitor and Review. Key Security Policies- Acceptable use policy – Password policy – Remote Access policy – Virus prevention and Protection policy. Intrusion Detection.	The students can 1. develop the understanding of security policies 2. design a notional information security plan that incorporates relevant principles of lifecycle management 3. identify the intrusion detection attempts to access the protected resources	12
5	Security Audit: Introduction – Objectiveness of security audit – when is a security audit required. Auditor – Qualification of an auditor – role of an auditor – responsibilities of an auditor. Conducting Security Audits – Auditing strategies – Phases of a security audit – types of security audits. Sample Security Policy.	The students can 1. interpret the responsibilities of security auditor and conducting security audits 2. assess the role of strategy and policy in determining the success of information security 3. identify and contrast the most common security standards and associated catalogues of security controls	12

Text Book:

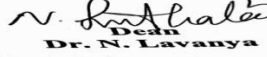
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Information Security An Overview	NIIT	2019 (1)	PHI
2.	Information Security Principles and Practices	Mark Stamp	(2)	Wiley Publications
3.	Information Security: The Complete Reference	Mark Rhodes & Ousley	(2)	Mcgraw Hill

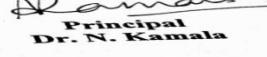
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Information Security	Pankaj Sharma	2013(1)	S.K.Kataria & Sons
2.	Information Security Principles and Practices	Mark Merkow, Jim Breithaupt.	2007 (1)	Pearson Education.


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SEMSTER IV

Programme: UG	Subject: Computer Science
Course code:19UCSA41	Course Title: Microprocessor and Microcontrollers
Category: Allied	Credits: 3

Objectives:

1. To introduce architecture and operations of typical Microprocessor and Microcontroller.
2. To provides strong foundation for designing real world applications using Microprocessor and Microcontroller.

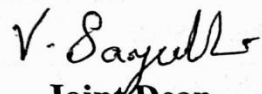
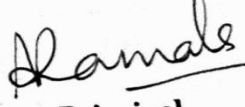
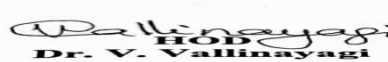
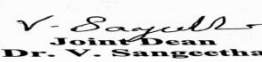
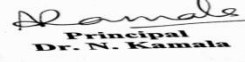
Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction to 8085 Assembly language-8085 programming model-microprocessor architecture and its operation-Introduction to 8085 Architecture- Instruction-Programming technique and additional Instruction-counters-time delays-stack and subroutine-Interfacing I/O devices-Interrupts-	The students can 1. draw a simple memory schema. 2. know the structural differences between microprocessor and microcontroller 3. study the binary to BCD conversion using assembly language.	9
2	Intel 8086 microprocessor – Architecture – Instruction set and assembler directives – Addressing modes – Assembly language programming – Procedures – Macros – Interrupts and interrupt service routines.	The students can 1. know the architecture of 8085 microprocessor. 2. understand the operation of programmable interface devices. 3. demonstrate the assembly language programming for delays and subroutines.	9
3	8086 signals – Basic configurations – 8086 system and timings – Multiprocessor configurations – Coprocessor, Closely coupled and loosely Coupled configurations – Introduction to 8087 architecture and Instruction set	The students can 1. know the features of advanced microprocessor 8087. 2. understand the different peripheral devices and standard buses. 3. explain the instruction sets.	9
4	Memory Interfacing and I/O interfacing - Parallel communication interface – Serial communication interface – Timer – Keyboard /display controller – Interrupt controller – DMA controller – Programming and applications	The students can 1. analyze parallel and serial interfacing circuits and specify the memory address of a given memory device. 2. know the features of Programmable Interrupt Controller and the Direct Memory Access data transfer. 3. illustrate the interfacing of a matrix keyboard using keyboard encoder.	9
5	Microprocessor Application-interfacing –scanned multiplexed display and LCD 464-Memory design. Microcontroller Applications: Keyboard interface-display interface. Interfacing DAC 1408/DAC/0808 with 8051-interface-display interface. Interfacing ADC 0803/0804/0805 With 8051.	The students can 1. illustrate the interfacing of scanned display and LCD display. 2. draw flowcharts to illustrate the software design of key monitor program and related submodules. 3. understand the concepts of ADC and DAC 8051.	9

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Microprocessor s and Microcontrollers	A.P.Godse D.A.Godse	2012	Technical Publication
2.	Microprocessor - Architecture, Programming and Applications with the 8085I, Fifth edition, Penram International Publishing Private Limited, 2002	Ramesh S.Gaonkar,	2010	Penram International Publishing Private Limited
3.	Advanced Microprocessors and Peripherals- Architectures, Programming and Interfacing	A. K. Ray & K. M. Bhurchandi	2006 (2)	Tata McGraw Hill.

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	The Intel Microprocessors, 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, Pentium Pro Processor, Pentium II	Barry B. Brey	2012	Eighth Edition, Pearson Prentice Hall, 2009

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UCS – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011
SEMESTER IV

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UNCS4A	Course Title: Fundamentals of Computer
Category: NME	Credits: 2

Objectives:

- To study the basic concepts of computer.
- To study the concept of operating system and peripheral devices.

Unit	Detailed Syllabus	Outcomes	Hrs
1	Computer Preliminaries: Introduction – Characteristics of a Computer – Generations of Computer – Applications of Computer – Architecture of a Computer – Computer memory – Classification of Computers - Concepts of Hardware and Software.	The students can 1. have a basic understanding of personal computers and their operations. 2. understand the fundamental hardware components that make up a computer's hardware and the role of each of these components 3. identify the principal components of a given computer system and draw a diagram style of represent the data flows between them.	6
2	Peripheral Devices: Input Devices – Keyboard, Pointing Devices, Scanning Devices, Audio and Video input devices. Output Devices – Dot matrix printer, Ink-jet Printer, Laser Printer, Drum Plotter, Flatbed Plotter, Monitors, Projectors, Speaker, Headphone. Storage devices – Hard disk, Optical Storage devices, Solid State devices.	The students can 1. understand the concept of input and output devices of Computers 2. demonstrate how it works and recognize the basic terminology used in computer. 3. apply different types of input and output devices in various technologies.	6
3	Operating Systems: Introduction – types of User Interface – Functions of Operating System – Getting started with Windows – Windows Explorer – Windows setting – Creating Shortcuts – Windows Accessories.	The students can 1. operate a variety of advanced operating system. 2. understand the difference between an operating system and an application program 3. identify what type of operating system used in each computer	6
4	Elements of Word Processing : Introduction to Microsoft Office – MS Word – Creating, Opening and Saving a Document – Menu Bar – Formatting the text – View Menu – Insert menu – Tools Menu – Table Manipulation – Window menu – Printing a document.	The students can 1. navigate in word processors and use menus and commands 2. create and save a document in a word processor and be able to identify the document format by reference to the file extension. 3. understand the ethical issues in saving and printing word processing documents.	6
5	Evolution of internet-internet basics-basics internet terms-connected to internet-browser	The students can 1. acquire knowledge and familiar with basics of the Internet. 2. demonstrate the working principles of internet. 3. navigate different dynamic webpages in the internet and recognize how to use browser.	6

Text Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Introduction to Information Technology	ITL Education Solutions Limited	2009 (2)	Pearson Education
2.	Introduction to Computers	Peter Norton	2005 (7)	TMH

Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Introduction to Computer Science	Gilbert Brands	2013	Create space Independent Publication
2.	Fundamentals of Computers	V.Rajaram	(5)	PHI


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UCS – BOS – SRI SARADA COLLEGE FOR WOMEN, TIRUNELVELI – 627011

SEMESTER IV

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UNCS4B	Course Title: HTML
Category: NME	Credits: 2

Objective:

1. To study the basic concepts of Web design using HTML.
2. To learn the various tags used in HTML
3. To make use of Dynamic HTML

Units	Detailed Syllabus	Outcomes	Hours
1	Introduction to HTML: Designing a Home page – History of HTML – HTML generations- HTML Documents-Anchor tag – Hyperlinks –Sample HTML documents.	The students can 1.define HTML and common terminology related to HTML. 2.design a web page using tags and hyperlinks. 3.understand the concept of HTML documents.	6
2	Head and Body section: Header Section – Title-Prologue-Links-Colorful web page – Comments lines Designing the body: Heading printing –Aligning the headings-Horizontal rule- paragraph-Tab settings-Image and pictures-Embedding PNG format Images	The student can 1.insert heading levels within a web page. 2. Use innovative thinking skills to design and creates websites. 3.insert a graphic within a webpage.	6
3	Ordered and unordered lists: List- Unordered lists- headings in a list – ordered lists- Nested lists. Table handling: Tables- table creation in HTML- Width of the Tables and cells-Cells spanning multiple rows/Columns- Colouring cells – Column specification	The students can 1.design ordered and unordered list within a web page. 2.create a table for web pages. 3.understand the principles of creating an effective web page.	6
4	Frames: Frame set - Definition – Frame definition –Nested Frames Web Page Design Project : Frameset Definition – Animals – Birds – Fish Forms: Action attributes – Method attributes –Enctype attribute – Drop down list- sample forms	The students can 1.demonstrate the web page design project using frames. 2.develop the skills in analyzing and usability of a web site. 3.get knowledge about to publish a web page.	6
5	DHTML and Style sheets: Defining styles – Elements of styles- Linking a style sheet to an HTML document –Inline styles –Internal & External style sheets –Multiple styles	The students can 1.use the cascading style sheets in a webpages. 2.work with types of style sheets. 3.describe the internal and external style sheets in web communications.	6

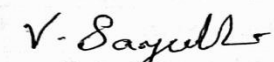
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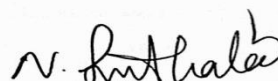
S.No	Title of the Book	Author	Edition, Year	Publication
1	World Wide Web Design with HTML	C. Xavier	2001	Tata McGraw Hill Education Private Limited.

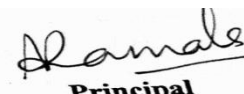
Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Internet & World Wide Web	H.M.Deital,	-	Pearson Education
2	Fundamentals of information technology	Mathew's lenon and Alxis leon	-	Vijay Nicole Private Limited


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SEMESTER IV

Programme: UG	Subject: B.Sc., Computer Science
Course code:19UCSCL41	Course Title: Visual Basic Practicals
Category: Core	Credits: 2

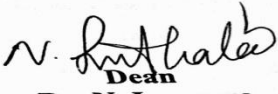
VISUAL BASIC- LIST OF PRACTICAL

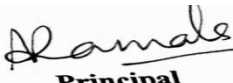
Write application program

- 1 To find volume of a cylinder
- 2. To design a desktopcalculator.
- 3. To find the prime numbers between 1 to 100 and display it onto the form usingfunction.
- 4. To display the reverse of a given number usingfunction.
- 5. To find the Fibonacci series up to given term (use InputBox).
- 6. To create a standard toolbar on to theform.
- 7. To find the roots of quadraticequation.
- 8. To create a MDI Application with tile and cascade childforms.
- 9. To create an application to implements OLE Drag andDrop.
- 10. To create a menu driven program in VB for i) Addition ii) Subtraction iii) Multiplication iv)Division.


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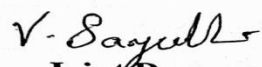
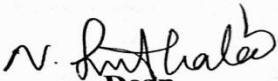
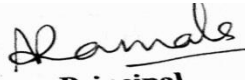
SEMESTER IV

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSAL41	Course Title: Programming with PHP Practicals
Category: Allied Lab	Credits:2

PROGRAMMING WITH PHP -LIST OF PRACTICAL

To write aProgram

1. Simple PHPprogram
2. To sort anArray.
3. To find Even or oddnumber.
4. To generate an Armstrongnumber.
5. To Series of N Primenumber.To generate FibonacciSeries
6. To find area of triangle andrectangle
7. To check whether the given number is Palindrome orNot.
8. To swap twonumbers
9. Insert values inDatabase
10. Session, Cookies and Querystring
11. Display table database and table usingPHP
12. Create database and table usingPHP
13. Program usingfiles.

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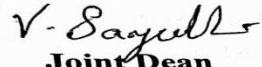
SEMESTER IV

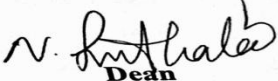
Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSSL41	Course Title: Internet Programming Practicals
Category: Skill Based Lab	Credits:2

INTERNET PROGRAMMING- LIST OF PRACTICAL

1. To create website using internal links and images
2. To create a HTML document to display a list of five flowers and link each one to another document displaying a brief description of the flower, Add pictures wherever possible.
3. To embed Audio and Video in an HTML page.
4. To write a program to rotate an element using CSS
5. To build a simple quiz by using javascript.
6. To create a simple multiplication table by using Javascript.
7. To find sum of two numbers by using Javascript..
8. To create an HTML code to display a list of five cars in a frame, link each one to a brief description in second frame. The left frame should display the list and the right frame should display the content about the frame.


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SEMESTER IV

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UDLT41	Course Title: Digital Learning Tools
Category: Common	Credits:1

OBJECTIVES

- 1. Develop deeper insights into the dynamics ofE -content creation
- 2. Produce a E -module on some concept on their discipline

SYLLABUS/UNITS:

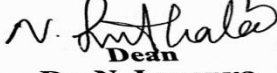
Unit	Detailed syllabus
1	E-Content Digital Literacy – Digital Literacy- E-content MOOC’s-Revolution-Differences between MOOC’s and face to face learning- Reformation of Education – opportunities, impacts and challenges.
2	E content Development-Basics of static E content development-Information collection strategies-Life cycle of E - content development- publishing E- content and Pedagogical issues –plagiarism.
3	MOOCs: MOOCs The skill gap Fillers- Design principles –Learning object design-Open education resources- Teaching- Learning approach strategies.
4	Literacy discussion- Recognizing learner autonomy-Theoretical framework of E-learning- Challenges of MOOC players-Case study-Case study 2.
5	Integrating E learning-Continuous Proficiency Development-E-Learning standards-Issues in Indian Context for E -Content development.

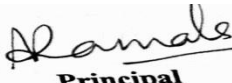
REFERENCE BOOKS:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	E learning fundamentals	Diane Elkins et al	2015	-
2.	Wiley Handbook of learning technology	Nick Rusbhy et al	-	Wiley education- Wiley


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SEMESTER V

Programme: UG	Subject: Computer Science
Course code: 19UCSC51	Course Title: Software Engineering
Category: Core	Credits:4

Objectives:

1. To understand the concept of analysis, design, and implementation of a software product.
2. To have general understanding about object-oriented software engineering

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Software Engineering Discipline - Evolution and Impact - Programs Vs. Software Products - Emergence of Software Engineering - Change in Software Development Practices - Computer Systems Engineering. Software Life cycle Models: Use of a Life Cycle Models - Classical Waterfall Model - Iterative Waterfall Model - Prototyping Model - Evolutionary Model - Spiral model. Software Project Management: Responsibility of a Software Project Manager - Project Planning - Metrics for Project Size Estimation - Project Estimation Techniques - Risk Management - Software Configuration Management.	The students can 1. define various software application domains and remember different process model used in software development. 2. explain needs for software specifications also they can classify different types of software requirements and their gathering techniques. 3. estimate the project size and cost.	12
2	Requirements Analysis and Specification: Requirements Gathering And Analysis - Software Requirements Specification (SRS) - Formal System Development Techniques. Software Design: Characteristics of a Good Software Design - Cohesion and Coupling - Neat Arrangement - Software Design Approaches.	The students can 1. know the value of documentation. 2. split the project modules with minimum coupling. 3. design the project in a structured way.	12
3	Function Oriented Software Design: Overview of SA/SD Methodology Structured Analysis - Data Flow Diagrams (DFDs) - Structured Design - Details Design - Design Review. Object Modeling Using UML: Overview of Object Oriented Concepts - UML - UML Diagrams - Use Case Model - Class Diagrams - Interaction Diagrams - Activity Diagrams - State Chart Diagram.	The students can 1. convert the requirements model into the design model and demonstrate use of software and user interface design principles. 2. explain the UML diagram of a project. 3. can able to draw the UML diagram for a project.	12
4	User Interface Design: Characteristics of a Good User Interface - Basic Concepts - Types of User Interfaces - Component - Based GUI Development. Coding and Testing: Coding - Testing - UNIT Testing - Black-Box Testing - White - Box Testing - Debugging - Integration Testing - System Testing.	The students can 1. classify different testing strategies and tactics and compare them. 2. apply the necessary needed testing strategies on the software. 3. have an idea about the user interface.	12
5	Statistical Testing: Software Quality - Software Quality Management System - ISO 9000. Computer Aided Software Engineering: CASE Environment - CASE support in Software Life Cycle - Characteristics of CASE Tools - Architecture of a CASE Environment. Software Maintenance: Characteristics of Software Maintenance - Software Reverse Engineering - Software Maintenance Process Models - Estimation of Maintenance Cost. Software Reuse: Issues in any Reuse Program - Reuse Approach.	The students can 1. generate project schedule and can construct, design and develop network diagram for different type of Projects they can also organize different activities of project as per Risk impact factor. 2. analyze, design, verify, validate, implement, apply, and maintain software systems. 3. work in one or more significant application domain.	12

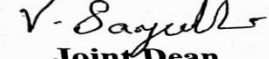
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Fundamentals Of Software Engineering	Rajib Mall	2014 (4)	Prentice Hall of India Learning Private Limited
2.	Software Engineering Concepts	Richard E. Fairley	2001 (1)	Tata Mcgraw-Hill Education(India)Ltd
3.	Software Engineering A Practitioner's Approach	Roger S.Pressman	2009 (7)	McGraw-Hill International Editions

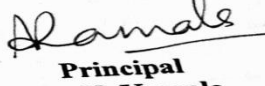
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Object Oriented Software Engineering	Yogesh Singh, Ruchika Malhotra	2012 (1)	PHI Learning Private Limited
2.	Software Engineering	Sommer Vile	2008 (5)	Addition Wesley.


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SEMESTER V

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSC52	Course Title: Computer Graphics and Visualization
Category: Core	Credits:3

Objectives:

- To develop skills and knowledge about computer graphics and Visualization
- To understand 2D & 3D Transformations

Unit	Detailed Syllabus	Outcomes	Hours
1	Overview of Graphics System: Video Display devices - input devices-hard copy Devices-Graphics Software, Output Primitives: Points and Lines-Line drawing algorithms-DDA Algorithm-Bresenham's line algorithm. Circle drawing Algorithms: Properties of Circles-Midpoint Circle algorithm - Filled area primitives.	The students can 1. list the basic concepts used in computer graphics and become familiar with building approach of graphics system components and algorithms related with them. 2. comprehend and analyze the fundamentals of animation, virtual reality, underlying technologies, principles, and familiar with building approach of graphics system components and algorithms related with them. 3. develop skills and knowledge about computer graphics and Visualization	12
2	Attributes of Output Primitives: Lines attributes - Curve attributes -Character attributes. Two Dimensional Geometric Transformation: Basic Transformation-Matrix representations-Homogenous co-ordinates-Composite and other Transformation.	The students can 1. implement various algorithms to scan, convert the basic geometrical primitives,transformations, Area filling,clipping. 2. understand of how to scan convert the basic geometrical primitives, how to transform the 2-D shapes to fit them as per the picture definition. 3. understand how to transfer basic transformation to composite transformation.	12
3	Two Dimensional Viewing: The Viewing Pipeline, Viewing co-ordinates references frame-Window to viewport coordinate transformation-two dimensional viewing function. Clipping Operations: Point Clipping-Line clipping(Only Cohen-Sutherland line clipping)-Polygon clipping(only Sutherland-Hodgeman polygon clipping)	The students can 1. learn the basic principles of 2-dimensional computer graphics 2. critical understanding of the theory of 2D transformations, projection and viewing 3. provide an understanding of mapping from a world coordinates to device coordinates,clipping, and projections	12
4	Interactive Input Methods: Input of graphical data-Input functions-Three Dimensional Display Methods, Three Dimensional Viewing: Projection Visible Surface Detection methods: Back-Face Detection-Depth Buffer Method.	The students can 1. learn the basic principles of 3-dimensional computer graphics. 2. critical understanding of the theory of 3D transformations, projection and viewing. 3. describe the importance of viewing and projections.	12
5	Multimedia Introduction: What is multimedia?- Hardware component of a multimedia system. Multimedia elements: Text and Graphics-Sound-Animation-Video-issues and trends in multimedia.	The students can 1. developed understanding of technical aspect of Multimedia Systems 2. understand various file formats for audio, video and text media 3. evaluate multimedia application for its optimum performance.	12

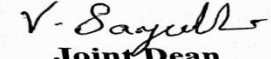
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Computer Graphics C Version	Donald Hearn, M.Pauline Baker,	1996(2)	Prentice Hall
2.	Multimedia in Action	James E.Shuman	1997 (1)	Vikas Publishing House
3.	Computer Graphics	Apurva Desai	2008 (Eastern Economy Edition)	Prentice Hall Of India Learning Private Limited 2008.

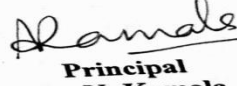
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Computer Graphics C Version	Hearn Baker	(2)	Pearson.
2.	Computer Graphics A Programming Approach	Steven Hamington	(2)	McGraw Hill
3.	Computer Graphics Multimedia and Animation	Malay K.Pakhira	(2)	PHP Learning Pvt.Ltd.


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SEMESTER V

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSC53	Course Title: ASP.NET Programming
Category: Core	Credits:3

Objectives:

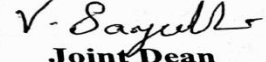
- 1. To highlight the features of ASP.NET and apply it to develop various applications.
- 2. To understand the concepts of .Net framework as a whole and the technologies that constitutes the frame work

Unit	Detailed Syllabus	Outcomes	Hours
1	The .NET Framework and .NET Languages: The.NETprogrammingFramework-VB.NET,C#andthe .NET languages - VB.NET versus VBScript and Visual Basic 6 - The Common Language Runtime - The .NET Class Library - ASP.NET - Visual Studio .NET. The .NET Languages - Data Types - Declaring Variables - Scope and Accessibility Variable Operations - Object -Based Manipulation - Functions and Subroutines	The students can 1.understand .NET Framework and Common Language Runtime (CLR) 2.acquire knowledge about C# and Dot Net languages 3.realize the use of functions and subroutines	12
2	Types, Objects and Namespaces The Basics about Classes - Value Types and References Types - Advanced Class Programming - Understanding Namespaces and Assemblies Setting up ASP.NET and IIS Web Servers and You - IIS Manager - Installing ASP.NET - Migrating fromASP	The students can 1. understand how to perform operations using classes, methods, types and objects 2.develop the understanding of namespaces and assemblies 3.setup the Internet Information Server and ASP.NET	12
3	ASP.NET Applications Introduction -code behind-The Global.asax-Application File Understanding ASP.NET classes-ASP.NET configuration. Web Form Fundamentals. A Simple page Applet-Improving the currency converter-A Deeper look at HTML control classes-The page class-Assessing HTML Server Controls.	The students can 1.recognize how to configure ASP.NET 2.design ASP.NET applications using Web forms and Applet 3.assemble web forms, HTML classes and server controls	12
4	Web controls Stepping up to web controls-Web Control Classes-AutoPostBack and Web Control Events -A Simple web page Applet-Assessing web controls. Using Visual Studio.NET. The Promise of visual studio.NET-starting a VisualStudio.NET project-The web form designer-Writing code-Visual Studio.NET debugging-Working withoutVisual Studio.NET.	The students can 1. understand the use of Webcontrol classes andevents 2. create /develop simple web page applet by accessing web controls 3.utilize the VisualStudio.NET framework to buildapplications.	12
5	Validation and rich controls Validation: A Simple validation example-Understanding regular expressions. State Management The problem of state-view state-transferring information- Custom cookies-session state-Session state configuration- Application state. Overview of ADO.NET : Introducing ADO.NET and data management-Characteristics of ADO.NET-The ADO.NET model.	The students can 1. realize the nature of validation andrich controls inASP.NET 2. construct / resolve Custom cookies, session state and application state 3.create simple data bindingapplications using ADO.Netconnectivity	12

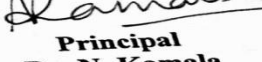
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	The Complete Reference ASP.NET	Mathew MacDonald,	2017	McGraw-Hill Education.
2.	ASP.NET and VB.NET Programming.	Matt J.Crouch	2002(1)	Pearson Education
3.	Programming ASP.NET	J.Liberty, D.Hurwitz	2006(3)	O'Reilly


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SEMESTER V

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSE51	Course Title: Cloud Computing
Category: Elective	Credits:3

- Objectives:**
- 1. Learn the fundamental concepts about data centers to understand the tradeoff in power, efficiency and cost.
 - 2. To provide in-depth knowledge of cloud computing technology, concepts, architecture and applications.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Cloud Computing Introduction, From Collaboration to cloud, Working of Cloud Computing, Pros and Cons, Benefits, Developing Cloud Computing Services, Cloud Service Development, Discovering Cloud Services.	The students can 1. articulate the History, characteristics, advantages, and Disadvantages of cloud Computing. 2. grasp the concepts related to security, privacy, Trust and Virtualization of cloud Computing. 3. describe the Cloud Architecture, cloud Computing Models and deployment Models.	12
2	Cloud Computing For Everyone Centralizing Email Communications, Collaborating on To-Do Lists, Contact Lists, Grocery Lists and Household Budgets, Cloud Computing for Community, Collaborating on Schedules, Collaborating on Group Projects and Events, Cloud Computing for Corporation, Mapping Schedules Managing Projects, Presenting on Road, Accessing Documents on the road.	The students can 1. analyze Virtualization in Cloud. 2. realize the Nature of Security Issues and challenges in Cloud Computing. 3. identify Types of Attackers, Security Risk in Cloud Computing.	12
3	Using Cloud Services Collaborating on Calendars, Schedules and Task Management, Exploring online Scheduling and Planning, Collaborating on Event Management, Collaborating on Contact Management, Collaborating on Project Management, Collaborating on Project Management, Collaborating on word Processing, Spreadsheets, and Databases. Collaborating on Presentations.	The students can 1. interpret attacks in Cloud Computing Environment and Hypervisor. 2. evaluate the principle of Planning and Deployment for Secure virtualization. 3. define and differentiate Web Services and Cloud Storage.	12
4	Outside the Cloud Evaluating Web Mail Services, Evaluating Instant Messaging, Evaluating Web Conference Tools, Creating Groups on Social Networks, Evaluating on Line Groupware, Collaborating via Blogs and Wikis.	The students can 1. design Service Oriented architecture. 2. critique Migrating Applications to the Cloud Computing. 3. assess the Cloud Computing applications to deploy into associated environment.	12
5	Storing and Sharing Understanding Cloud storage, Evaluating online File Storage, Exploring online Book Marking Services, Exploring on Line Photo Editing Applications, Exploring Photo Sharing Communities, Controlling it with Web Based Desktops.	The students can 1. elucidate Standards in Cloud computing. 2. describe the Need for Mobile Cloud computing and Mobile Cloud computing Architecture. 3. scrutinize the Benefits and drawbacks of Micro Services.	12

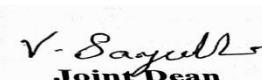
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Cloud Computing	Michael Miller	2009	Pearson Education
2.	Cloud Computing	V.K.Pachghare	2016	PHI Learning PVT Ltd
3.	Cloud Computing	Antony T. Velte, Toby J. Velte, Robert Eisenpeter	2009	TMH

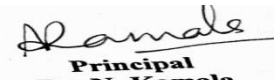
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Cloud Computing Bible	Barrie Sosinsky	2010 (1)	Willey Publishing
2.	Mastering Cloud Computing	Rajkumar Buyya, Christian Vecchiola, S. Thamarai Selvi.	2013	MCH


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SEMESTER V

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSE52	Course Title: AD-HOC and Sensor Networks
Category: Elective	Credits:3

- Objectives:**
- 1. To learn the basics of sensor network and Ad hoc Networks with its protocol
 - 2. To develop MAC and routing protocols for sensor and Ad hoc networks

Unit	Detailed Syllabus	Outcomes	Hours
1	Adhoc Networks & Communication Protocols: Fundamentals Of WLANs – IEEE 802.11 Architecture - Self Configuration and Auto Configuration-issues in Ad-Hoc Wireless Networks – MAC Protocols for Ad-Hoc Wireless Networks – Contention Based Protocols - TCP Over Ad-Hoc Networks-TCP Protocol Overview - TCP and MANETs – Solutions for TCP Over AdHoc Networks	The students can 1. know the layers of network. 2. gain the purpose of Adhoc network. 3. have a detail look of protocol.	12
2	Adhoc Network Routing And Management: Routing in Ad-Hoc Networks- Introduction -Topology based versus Position based Approaches – Proactive Routing - DSDV, WRP, TBRPF Reactive Routing – DSR,AODV, Hybrid Routing Approach ZRP, CBRP- Location services - DREAM – Quorums based Location Service – Forwarding Strategies – Greedy Packet Forwarding, LAR.	The students can 1. know different types of routing protocol. 2. negotiation of various connection protocols. 3. know the detection of physical connection.	12
3	Sensor Network Communication Protocols: Introduction – Architecture - Single Node Architecture – Sensor Network Design Considerations – Energy Efficient Design Principles for WSN’s – Protocols for WSN – Physical Layer - Transceiver Design Considerations – MAC Protocols for wireless sensor network – IEEE 802.15.4 Zigbee – Link Layer and Error Control Issues - Routing Protocols – Gossiping and agent based unicast forwarding, Energy efficient unicast-Transport Protocols & QoS – Congestion Control Issues – Application specific Support – Target detection and tracking.	The students can 1. learn the existing protocol. 2. monitor the nodes present in sensor network. 3. find out lifetime of network.	12
4	Sensor Network Management And Programming: Sensor Management - Topology Control Protocols and Sensing Model Selection Protocols - Time Synchronization - Localization and Positioning – Operating Systems and Sensor Network Programming – Sensor Network Simulators- Case study: Industrial automation and tsunami early warning system with wireless sensor networks.	The students can 1. analyses the performance issues in network. 2. achieve efficient system performance. 3. gain knowledge about compute system parameters.	12
5	Adhoc And Sensor Network Security: Security in Ad-Hoc and Sensor Networks – Key Distribution and Management – Software based Anti-tamper Techniques – Water Marking techniques – Defense against Routing Attacks - Secure Adhoc Routing Protocols – Broadcast Authentication WSN Protocols – TESLA – Biba – Sensor Network Security Protocols – SPINS.	The students can 1. combine computer science and mathematics. 2. use various techniques in mobile network. 3. study the efficient protocol for sensor networks.	12

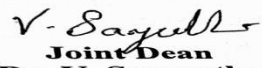
Text Books

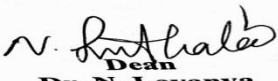
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Wireless Sensor and Actuator Networks: Algorithm and Protocols for Scalable Coordination and Data communication	Amiya Nayak, Ivan Stojmenovic	2010(1)	John Wiley & Sons
2.	Ad Hoc Wireless Networks – Architectures and Protocols	C.Siva Ram Murthy and B.S.Manoj	2008 (3)	Pearson Education
3.	Security in Wireless Ad Hoc and Sensor Networks	Chunming Rong, Erdal Cayirci	2009(1)	John Wiley & sons

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Secure Broadcast Communication: In Wired and Wireless Networks	Adrian Perrig, J. D. Tygar	2003	Springer
2.	Ad Hoc Mobile Wireless Networks	C.K.Toh	2002 (2)	PHI


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SEMESTER V

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSE53	Course Title: Mobile Computing
Category: Elective	Credits: 3

Objectives:

- 1. To highlight the features of Mobile Communication.
- 2. To learn about package and deploying Applications.

Unit	Detailed Syllabus	Outcomes	Hours
1	Basics of Communication Technologies: Components of a Wireless Communication System – Architecture of a Mobile Telecommunication System – Wireless Local Area Networks – Bluetooth Technology. Introduction to Mobile Computing and Wireless Networking: What is Mobile Computing? Mobile Computing vs. Wireless Networking – Characteristics of Mobile Computing – Structure of Mobile Computing Application – Cellular Mobile Communication – Global System for Mobile Communications (GSM) – General Packet Radio Service (GPRS) – Universal Mobile Telecommunications System (UMTS).	The students can 1. identify the Components of a wireless Communication System 2. explain the principles and theories of mobile computing technologies 3. explain how the GPRS, GSM, UMTS works.	12
2	MAC Protocols: Properties required of MAC Protocols – Wireless MAC Protocols: Some Issues – A taxonomy of MAC Protocols – Fixed Assignment schemes – Random Assignment Schemes – Reservation based Schemes. Mobile Internet Protocol: Mobile IP – Packet Delivery – Overview of Mobile IP – Desirable features of Mobile IP – Key mechanisms used in Mobile IP – Route Optimization – Dynamic Host Configuration Protocol.	The students can 1. understand the properties required for MAC Protocol. 2. identify the important issues of developing mobile computing systems and applications. 3. demonstrate the key mechanism used in Mobile IP	12
3	Basics of satellite communication : GEO, LEO, MEO – Broadcast System - Overview of broadcasting, Digital audio broadcasting, Digital video broadcasting. Mobile ad-hoc networks – WAP - Architecture, WAP	The students can 1. describe the basics of satellite communication 2. understand the Broadcast System 3. know the components of WAP architecture	12
4	Wireless Sensor Networks: WSN vs. MANET – Applications – Architecture of the Sensor Node – Challenges in the design of an effective WSN – Characteristics of Sensor Networks – WSN Routing Protocols – Target Coverage – Clustered Wireless Sensor Networks. Operating Systems for Mobile Computing: Special Constraints and requirements of Mobile O/S – A survey of Commercial Mobile Operating Systems – A Comparative study of Mobile OS.	The students can 1. understand the architecture of the Sensor Node 2. identify the Challenges in the design of an effective WSN 3. compare the different mobile OS.	12
5	Mobile Application Development and Protocols: Mobile Devices as Web Clients – WAP – J2ME – Android Application Development. Mobile Commerce: Applications of M-Commerce – Business-to-Business (B2B) Applications – Structure of Mobile Commerce – Pros and Cons of M-Commerce – Mobile Payment Systems.	The students can 1. explain how the mobile Devices act as Web Clients 2. list the applications of M-commerce in different domains 3. know how to use mobile payment systems	12

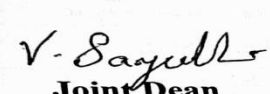
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Fundamentals of Mobile Computing	Prasant Kumar Pattnaik, Rajib Mall	2015 (1).	PHI
2.	Wireless and Cellular Telecommunications	William C.Y. Lee	2005 (1)	McGraw Hill
3.	Wireless and Mobile Communication	T.G. Palanivelu & R. Nakkeeran	2008 (1)	PHI Learning Private Limited,

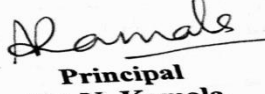
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Mobile Computing Technology, Applications and Service Creation	Asoke K. Talukder & Roopa R. Yavagal	2017 (1)	TMH Publication
2.	Wireless Communications and Networking made simple	Prof. Satish Jain, Vineeta Pillai	2017 (1)	BPB Publications


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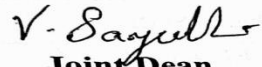
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SEMESTER V

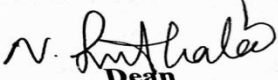
Programme: UG	Subject: B.Sc., Computer Science
Course code:19UCSCL51	Course Title: ASP.NET Practicals
Category: Core	Credits:2

ASP.NET -LIST OF PRACTICAL

1.
- To build a home page for XYZ Corporation using webcontrols.
2.
- To create a login page using user control in a webform
3.
- To create a simple multiple choice questionnaire. Submit the answers and display thescore.
4.
- To develop a Project to input data through a web form to a database and retrieve the data. Use the calendar control to inputdate
5.
- To develop a Project to input data through a web form to a database and validate the data. Use the RequiredField Validator and Range Field Validator.
6.
- To check whether a given word or phrase is a palindrome using WebService.
7.
- To create an online photo gallery using Data List and Data GridControls.
8.
- To develop code to send email fromASP.NET


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SEMESTER V

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSCEP51	Course Title: Computer Science for Competitive Examinations and Project
Category: Core	Credits: 6

Project Guidelines

(For Certificate, Diploma, Advanced Diploma, UG, PG, and MPhil., programmes) Duration of the project work shall be for a period of one semester Project work shall be carried out under the supervision of a faculty member of the department concerned or from allied department, if the work is of interdisciplinary in nature or with internal or external expert beyond the department as co-supervisor. The supervisor allocation shall be made by lot by the end of 4 semester in UG, by the end of 2ndsemester in PG (April 1st week) and for MPhil., 15 days after joining the programme. The allocation details may be sent to Autonomous cell by 10th April for UG & PG and for MPhil., 30 days after joining the programme.

After allocation, the respective supervisors have to conduct orientation/counsel meeting with the assigned candidates about the project with P3 agenda (Participation, Presentation, and Publication) towards career prosperity. Subject Knowledge towards Pure and Applied part may be highlighted for doing the project.

The HoD shall review the coverage of different fields of the subject amongst the candidates and to see that the students should not focus on particular fields alone.

The candidates have to study/refer journals/previous works/focus on the proposed topic in the summer vacation and 5-10 titles of proposed project on respective subject (discipline) or on allied subject (interdisciplinary) with economic/scientific/social/local/state/national/global issues may be submitted to the guide by May end.

The supervisor shall guide the candidates on their choice after having reviewed proposed topics, the mindset and work culture, provided the work is of innovative in nature, affordable and with future prospective. If not satisfied with the proposed topic/due to lack of infrastructure/beyond scope and practicality, supervisor herself shall suggest the field/topic for work. Hard copy of proposed title with objectives in the prescribed format to be submitted to CoE’s Office through Dean, Autonomous in the last week of June

Parent’s undertaking/willingness may be obtained in writing by inviting the parents for department level meeting after explaining its importance, guidelines, safety precautions related to outdoor project commitments etc.

Project period – June to September. Last date for the submission of dissertation is 15th October

Project Progress Review has to be conducted in 5th July, 5th August and 5th September.Report Card for individual candidates shall be maintained at the department for audit at any time. (Proforma)

If a candidate fails to submit the dissertation on or before the specified date, she may submit the same on or before 15th November by paying prescribed late fee.

The evaluation of dissertation will be as per the University/Autonomous norms.

The assessment of Project component during the Course and in the End-semester examinations shall be carried out as follows:

CIA (Max: 25 Marks)				End – Semester Examination (Max.: 75 marks)				
Marks for Reviews (Average of the best two of the three compulsory Reviews) (Max.: 25 marks)				Marks for Thesis Evaluation (Max.: 25 marks)		Marks for Viva-Voce Exam. (wit the Deptl. Faculty Member / Course students) (Max.: 50 marks)		Total (Max.)
Review I (Max.)	Review II (Max.)	Review III (Max.)	Average of the best two (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	
25	25	25	25*	12.5	12.5	25	25	75*

* The marks secured may be rounded off to its nearest integer

14. PG and M.Phil., students should carry out the project individually. UG students may undertake group projects with a maximum of three students in a group. The group may be of interdisciplinary nature combining students from two to three departments with the concern of the respective guides. An undertaking, in this regard, has to be submitted by the group of students with the endorsement by the guides.

15. LATEX procedure shall be followed for Mathematics projects.

16. **GUIDELINES ON THESIS (WITH STATIONERY ECONOMY MEASURES):**

r. Number of Pages (inclusive of prefix and suffix):

- i) V semester Project Maximum 40 pages;
- ii) VI semester Project Maximum 60 pages,
- iii) PG Projects Maximum 80 pages;
- iv) MPhil., maximum 100 pages.

s. Size of the paper A4; Font Times New Roman; Title 14 Capitals/Bold; Subtitle 12 Capitals/Bold; Running matter 11.

t. Left and Right margin 1 and half inch; Top and bottom margin 1 inch

u. Line space 1.5

v. Table and Figures shall be in separate sheets (without page number). More than 1 table or figure or plate is permitted in a page. Table number followed by the title should be on the top of the respective table. Similarly Figure

Number followed by title be at the bottom of the respective figures. Regarding Plates ie photographs only original photographs (printed in photo sheet) of the work carried out and scientifically relevant to be included. The size the photographs should be reduced and neatly arranged in a page with appropriate title or sub title. Plate Number followed by the title be at the bottom of the photographs concerned.

- w. Number of copies:
- ix. Copy 1 – Student copy – Neatly typed on one side with good binding to be submitted (to be returned immediately after examination)
- x. Copy 2 – Department copy - Neatly typed on both sides of the paper with stapler pin binding –Copies of all students have to be bound in volumes of 1 or 2 and kept in the department for reference.
- xi. Copy 3 - Autonomous Office copy – Projects of all students as one CD/DVD & Hard copy of the abstract/extended abstract as OHP bound booklet.
- xii. For PG & MPhil., (Candidate copy - Hard bound (one side print), Autonomy (CD), Guide copy (CD), Department (CD containing all projects of the class), Central library (CD containing all projects of the class) & Hard copy of the abstract/extended abstract as OHP bound booklet.
- x. Uniform structure/composition of the thesis:

Uniformity in Prefix contents for all disciplines			
1	Wrapper page		
2	Wrapper page copy		
3	Contents		
4	Acknowledgement by the candidate		
5	Declaration by the Candidate with candidate’s Photo attested by HoD		
6	Certificate by the supervisor, countersigned by HoD		
7	Evaluation Examiners Page		
Running matter structure Arts, Languages, Humanities		Running matter structure Science	
1	Abstract/Extended Abstract	1	Abstract/Extended Abstract
2	Introduction	2	Introduction
3	Review of Literature	3	Review of Literature
4	Profile of The Study	4	Materials
5	Methodology & Data collection	5	Methodology
6	Analysis and Interpretation	6	Results
7	Findings, Suggestions and Conclusion	7	Discussion
8	Bibliography(Uniform format)	8	Bibliography (Uniform format)
Uniformity in Suffix – contents			
Publications – Xerox of Abstracts/extended abstracts/Full papers			

y. Bibliography: Arts & Science.

X Research article: Latha, P., Dhanabackialakshmi, R., Kumar, P.S. and Karuthapandian, S. 2016. Synergistic effects of trouble free and 100% recoverable CeO₂/Nylon nanocomposite thin film for the photocatalytic degradation of organic contaminants. Separation and Purification Technology, 168(2): 124–133

xi. Conference / Seminar / Symposium papers

Peng, J., Zhang, X., Lei, Z., Zhang, B., Zhang, W. and Li,Q. 2009. Comparison of several cloud computing platforms. In: Proceedings of Second International Symposium on Information Science and Engineering, 23 – 27

xii. Books Versteeg, H.K. and Malalasekera, W. 2007.An Introduction to Computational Fluid Dynamics. II Edn. Pearson Education Ltd., New York, pp. 517

xiii. Book Chapters

Wade, S.E. 1981. Statistical designs for survey research. In: Stempel, G.H. and Westley, B.H. (Eds.). Research methods in mass communication.Printice Hall India Learning India Ltd., New Delhi, pp. 167

xiv. Web reference National Institute of Mental Health.2018, July.Anxiety disorders. U.S. Department of Health and Human Services, National Institutes of Health. <https://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>

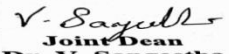
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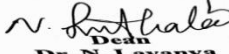
   

Competitive Exam for Computer Science

Unit	Detailed Syllabus
1	Discrete Structures and Optimization Mathematical Logic: Propositional and Predicate Logic, Propositional Equivalences, Normal Forms, Predicates and Quantifiers, Nested Quantifiers, Rules of Inference.
2	Sets and Relations: Set Operations, Representation and Properties of Relations, Equivalence Relations, Partially Ordering. Counting, Mathematical Induction and Discrete Probability: Basics of Counting, Pigeonhole Principle, Permutations and Combination
3	Basic Computer Organization and Design: Stored Program Organization and Instruction Codes, Computer Registers, Computer Instructions, Timing and Control, Instruction Cycle, Memory-Reference Instructions, Input-Output, Interrupt. Programming the Basic Computer: Machine Language, Assembly Language, Assembler, Program Loops, Subroutines, Input-Output Programming.
4	Normalization for Relational Databases: Functional Dependencies and Normalization; Algorithms for Query Processing and Optimization; Transaction Processing, Concurrency Control Techniques, Database Recovery Techniques, Object and Object-Relational Databases; Database Security and Authorization.
5	Memory Management: Contiguous Memory Allocation, Swapping, Paging, Segmentation, Demand Paging, Page Replacement, Allocation of Frames, Thrashing, Memory-Mapped Files. Storage Management: Mass-Storage Structure, Disk Structure, Scheduling and Management, RAIDStructure.


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SEMESTER VI

Programme: UG	Subject: Computer Science
Course code: 19UCSC61	Course Title: Operating System
Category: Core	Credits:4

Objectives:

- 1. To acquire the fundamental knowledge of the operating system architecture and components and to know the various operations performed by the operating system.
- 2. Understand the basic working process of an operating system.

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction: What is an operating system: Mainframe Systems-Desktop System-Multiprocessor Systems-Distributed Systems-Clustered System	The students can 1. Know about the fundamentals. 2. Know about different types OS. 3. Learn about the Core Paper-components.	12
2	Process: Process Concept-Process Scheduling-Operations on Processes-Co-operating Processes-Inter Process Communication. CPU Scheduling: Basic Concepts-Scheduling Criteria-Scheduling Algorithms-Multiprocessor Scheduling-Real time Scheduling-Algorithm Evaluation.	The students can 1. Explain the concept of a process and the Process Control Block 2. Learn the mechanisms of OS to handle processes. 3. Describe the states and state transitions during the whole lifetime of a process.	12
3	Process Synchronization: Background-the Critical Section problem-Synchronization Hardware-Semaphores-Classical problems of Synchronization-Critical Regions-Monitors-Atomic Transactions. Deadlocks: System Model-Deadlock Characterization-Methods of handling deadlocks-Deadlock prevention-Deadlock Avoidance-Deadlock Detection-Recovery from deadlock.	The students can 1. Gain knowledge on distributed operating system concepts that includes architecture, mutual exclusion algorithms, deadlock detection algorithms and agreement protocols 2. Know the components and management aspects of concurrency management 3. Understand and analyze the theory.	12
4	Memory Management: Background-Swapping-Contiguous Memory Allocation-Paging-Segmentation-Segmentation with paging. Virtual Memory: Background-Demand Paging-Page Replacement-Allocation of Frames.	The students can 1. Study the layered structure of input/output software. 2. Know the principles of paging virtual memory (vm) 3. Understand how virtual memory of physical memory	12
5	File System Interface: File Concept-Access Methods-File System Structure-File System Implementation-Directories Structure-Directory Implementation-Allocation Methods-Free Space Management.	The students can 1. Know how the data structures of the UNIX. 2. Learn in detail how a system call is made and returns. 3. Understand and analyze the theory.	12

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Operating system concepts	Abraham silberschartz, Peter Baer Galvin, and Greg Gange	Sixth Edition,2016	Addison Wesley publishing company.
2.	Operating system internal and design principles	William stalling	5 th edition,2017	PHI learning private limited
3.	OS Design & Implementation	Andrew S.Tanennbam	2005(3)	Prentice Hall of India Publications, New Delhi

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Operating Systems Design and Implementation	Andrew.S.Tanenbaum,Albert S.Woodhull	2006(3)	PHI
2.	Operating System:A Design –Oriented	Charles Crowley	2017	McGraw Hill Education


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SEMESTER VI

Programme: UG	Subject: B.Sc., Computer Science
Course code:19UCSC62	Course Title: Data communication and Networks
Category: Core	Credits:3

Objectives:

1.
- To understand the concepts of data communication.
2.
- To get through the concepts of different topologies.

Unit	Detailed Syllabus	Outcomes	Hours
1	Basic model of data communication system-data representation -data transmission-modes of data transmissions-digital signal encoding-unipolar lines codes- bipolar line codes-block codes- frequency spectrum- transmission channel-data compression- data communication Transmission line characteristics-linear distortions-Metallic media-optical fiber-radio media-Baseband transmission of data signals.	The students can 1. know the basic steps of network. 2. establish transmission channel. 3. know the communication of data network.	12
2	Error Control :Transmission errors-Coding for detection and correction of content errors-error detection methods- Forward error correction methods-Reverse error corrections. Topology of computer network-Elements of meaningful communication- transport -oriented functions. Network Architecture : components of a computer network- architecture of a computer network-layered architecture of computer network-open system interconnections-layered architecture of the OSI reference model-functionality of the layered architecture-OSI terminology-service interface-data transfer modes- supplementary functions-Other layered architectures.	The students can 1. express the detection and correction procedure. 2. know the architecture of network. 3. know the OSI layer is implemented.	12
3	The Physical Layer :Functions within the physical layer- Relaying function in the physical layer-physical layer standards. Needs for Data Link Control- Data Link Layer : Frame Design Considerations-Flow Control Mechanism- Data Link Error Control. Binary Synchronous Communication Data link protocol-transmission frame- protocol operations.	The students can 1. know the needs of Data link. 2. know the protocol operations. 3. know the needs of error control mechanism.	12
4	LAN : Need for local area networks-LAN topologies-Media Access control-Layered architecture of LAN -IEEE standards- LLC sub layer- MAC sub layer-Transmission media for LANs- Contention access-carrier senses multiple access-CSMA/CD- physical topologies of Ethernet LAN- Ethernet Repeater-Types of ethernet-10 Mbps Ethernet- fast Ethernet-flow control- Auto negotiation-Gigabit Ethernet.	The students can 1. implement the LAN topology. 2. express the LLC sub layer. 3. proceed how collision occurs.	12
5	Network Layer :Store and Forward Data Networks- Types of Packet Switched Data Networks – Purpose of the Network Layer . Transport Layer : Transport Layer – TCP operation – Flow Control in TCP – User Datagram Portocol(UDP). Application Layer : TCP/IP Application Protocols - Domain Name System(DNS)- Dynamic Host Configuration Protocol- Trivial File Transfer Protocol(TFTP) – Telnet – File Transfer Protocol (FTP) – Electronic Mail –Simple Network Management Protocol (SNMP) – World Wide Web(WWW) – Hypertext Transfer Protocol(HTTP).	The students can 1. know the types of network layer. 2. know the needs of Transport Layer. 3. learn about SNMP, FTP and HTTP.	12

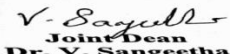
Text Books

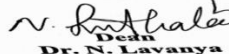
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Data communications and computer networks	Praksh C. Gupta	2006 (1)	PHI
2.	Data communication and networking	Behrouz A forouzan	2007 (4)	McGraw Hill.
3.	Computer Networks	Andrew S.Tanenbaum	2018 (4)	PHI

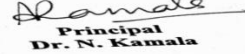
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Computer networks	Brijendra singh	(3)	PHI
2.	Computer networks	Bhushan trivedi	2012 (1)	Oxford University


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SEMESTER VI

Programme: UG	Subject: B.Sc.,Computer Science
Course code:19UCSC63	Course Title: Data Mining Techniques
Category: Core	Credits:3

Objectives:

- 1. To analyze the data, identify the problems, and choose the relevant models and algorithms to apply
- 2.To access the strengths and weakness of various methods and algorithms and to analyze their behavior

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: what is data mining-why data mining now-the data mining process-data mining applications-data mining techniques-some data mining case studies-the feature of data mining-guidelines for successful data mining- data mining software.	The students can 1. demonstrate an understanding of the importance of data mining. 2. effectively identify the sources of data and process it for data mining 3. apply knowledge of tools used for data mining.	12
2	Association rules Mining: Introduction- basic-the task and naive algorithm-the apriori algorithm-improving the efficiency of the apriori algorithm-mining frequent patterns without candidate generation-performance evaluation of algorithms-Advanced Association Rule Techniques- Measuring the Quality of rules.	The students can 1. organize and prepare the data needed for data mining using preprocessing techniques. 2. perform exploratory analysis of the data to be used for mining. 3. discover and measure interesting patterns from different kinds of databases	12
3	Classification : Introduction-decision tree-building a decision tree the tree induction algorithms-split algorithm based on the information theory-decision tree rules-decision tree summary-naive bays method-other evaluation criteria for classification methods.	The students can 1. implement the appropriate data mining for classification methods on large data sets. 2. build a decision tree. 3. apply the appropriate data mining technique, interpret and visualize the results	12
4	Cluster analysis: what is cluster analysis-desires features of cluster analysis-typed of data-computing distance-types of cluster analysis methods-Partitional methods- Hierarchical methods-dealing with large databases-cluster analysis software-Clustering with Categorical Attributes.	The students can 1.implement the appropriate data mining clustering methods on large data sets. 2.compute the distance between the datasets. 3.form clusters using hierarchical and partition methods	12
5	Web Mining: Introduction-Web content Mining-Web Structure Mining-Web Usage Mining. Spatial Mining: Introduction-Spatial Data Overview-Spatial Data Mining-Spatial rules-Spatial Classification Algorithms	The students can 1. effectively identify sources of data from Web and process it for data mining. 2. comprehend the roles that spatial mining plays in various fields and manipulate different spatial classification algorithms. 3. evaluate systematically web usage mining algorithms.	12

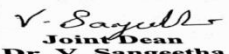
Text Books

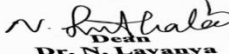
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Introduction to data mining with case studies	G.K.Gupta	2012 (2)	PHI
2.	Data Mining Introductory and Advanced Concepts	Marget H.Dunham	2002 (1)	Pearson Education
3.	Data mining	Vikaram pudi, P.Radha Krishna	2009 (1)	OXFORD university press

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Data mining concepts and technologies	Jiawei Han Micheline, kamber, Morgan	2005 (2)	MK Publications
2.	Data Mining Techniques.	Arjun K.Pujari	2004 (2)	Universities Press.


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SEMESTER VI

Programme: UG	Subject: Computer Science
Course code: 19UCSC64	Course Title: Database Management Systems
Category: Core	Credits:4

Objectives:

1. To acquire skills in SQL statements with various constructs
2. To acquire purpose of database systems.

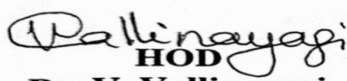
Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Database-System application-purpose of database systems-views of data-database languages-relational databases -database design-data storage and querying-transaction management-database architecture-data mining and information retrieval-specialty databases-database users and administrators.	The students can 1. identify the importance of the DBMS over file handling system. 2. understand different views on the DBMS. 3. understand the architecture of DBMS	12
2	Introduction to the relational model and introduction to SQL: Structure of relational databases-database schema-keys-schema diagrams-relational query language-relational operations-overview of the SQL query language-SQL data definition-basic structure of SQL queries.	The students can 1. explain the features of database management systems and Relational database. 2. understand the concepts of basic SQL as a universal database language.	12
3	SQL operations and intermediate SQL: Additional basic operations-set operations-null values-aggregate functions-nested sub queries-join expression-views-transactions- integrity constraints- SQL data types and schemas- Authorization. Advanced SQL: Accessing SQL from a Programming Language	The students can 1. retrieve any type of information from a data base by formulating complex queries in SQL. 2. create and populate a RDBMS for a real life application, with constraints and keys, using SQL. 3. have an idea to create a views on SQL tables and to operate on the views.	12
4	E-R Model and Relational Database Design: E-R- model-overview of the design process- the entity -relational ship model-constraints-removing redundant attributed in entity sets- entity-relationship diagrams-reduction to relational schemas- entity-relationship design issues-extended E-R features. Features of good relational design-atomic domains .Data Normalization.	The students can 1. design conceptual models of a database using ER modeling. 2. know about the importance of normalization. 3. analyze the existing design of a database schema and apply concepts of normalization to design an optimal database.	12
5	Implementation using Oracle: Creating table-modifying table-creating-SEQUENCE-creating views-Indexes: Creating and Changing an Index.PL/SQL-triggers-stored procedures and functions-packages-cursors. Users, Privileges and Roles.	The students can 1. build index in mechanisms for efficient retrieval of information from a database. 2. create a PL/SQL block. 3. create functions, procedures, triggers, packages in PL/SQL block.	12

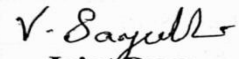
Text Books

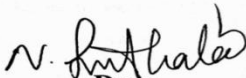
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Database system concepts	Abraham sillberschalz, Henry F.Horth and Sudarashan	2000(6)	McGraw-hill international
2.	Essentials of Database Management Systems	Alexis Leon ,Mathews L	-	Vijay Nicole Imprints Pvt Ltd.
3.	Oracle8i	Jose A.Ramalho	2000 (1)	BPB publications

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Database Systems	Connrly Begg	(4)	PHI Learning private limited
2.	Database Systems	Elmasri Navathe.	(6)	Pearson Publications.


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SEMESTER VI

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSE61	Course Title: Software Testing
Category: Elective	Credits:3

Objectives:

1. Understand the process to be followed in the software development life cycle.
2. To design and develop a test tool to support test automation.

Unit	Detailed Syllabus	Outcomes	Hours
1	Psychology and economics of program testing: overview- psychology of testing-the economics of testing-software testing principles.	The students can 1. understand the psychology of testing. 2. define the economics of testing. 3. analyze the software testing principles.	12
2	Programs –inspections-walkthroughs and review: overview- inspections and walkthrough –code inspections-error checklist- walkthroughs- desk checking-peer ratings.	The students can 1. define code inspections. 2. analyze the error checklists. 3. understand desk checking and peer rating.	12
3	Test case Design : overview-white box testing-error guessing- strategy-module testing-test case design- incremental testing – top down verses bottom up testing	The students can 1. differentiate top down testing and bottom up testing. 2. analyze white box testing. 3. understand the concept of module testing and incremental testing.	12
4	Higher order testing : overview- function testing -system testing-acceptance testing-installation testing—test planning and control-test completion criteria-independent test agency- debugging –brute force-induction-deduction-backtracking- testing-principles.	The students can 1. check the software under system testing acceptance testing and installation testing. 2. analyze various test planning and control and test completion in various software. 3. understand the concept of various principles present in software testing	12
5	Extreme testing-overview-extreme programming basis- Extreme testing-extreme testing applied-Testing internet applications-basic ecommerce architecture-testing challenges- testing strategies.	The students can 1. utilize the concept of extreme testing. 2. gather the knowledge of e-commerce in software testing. 3. understand the concept of various testing challenges and testing strategies used in various software	12

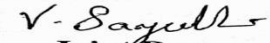
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	The Art of Software Testing	Glenford J. Myers	2011 (2)	John Wiley sons
2.	Foundations of Software	Aditya P. Mathur	2008 (1)	Dorling Kindersley
3.	Software Testing	Ron Patton	2005 (2)	Pearson Education

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Software Testing Principles and Practices	Naresh Chauhan	2010 (1)	Oxford University Press
2.	Lessons Learned in Software Testing,	Cem Kaner James Bach Bret Petichord	2002 (1)	Wiley Publication


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SEMESTER VI

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSE62	Course Title: Internet of Things
Category: Elective	Credits:3

Objectives:

1. Learn how the Internet of Things (IOT) has the potential to alleviate some of the world’s most significant problems
2. To learn IOT technology and architecture.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Internet Layers - Protocols - Packets - Services - Performance parameters - Peer-to-peer networks - Sensor networks - Multimedia - IOT Definitions and Functional Requirements –Motivation – Architecture - Web 3.0 View of IoT– Ubiquitous IoT Applications – Four Pillars of IoT – DNA of IoT - The Toolkit Approach for End-user Participation in the Internet of Things. Middleware for IoT: Overview – Communication middleware for IoT –IoT Information Security.	The student can 1. understand the concepts of Internet of Things 2. identify the different IoT technologies 3. understand the communication middleware and Information security in IoT	12
2	IOT Protocols: Protocol Standardization for IoT – Efforts – M2M and WSN Protocols – SCADA and RFID Protocols – Issues with IoT Standardization – Unified Data Standards – Protocols – IEEE 802.15.4 – BAC Net Protocol – point-to-point protocols - Ethernet protocols - cellular Internet access protocol - Machine-to-machine protocol - Modbus – KNX – Zigbee Architecture – Network layer – APS layer – Security.	The Student can 1. analyze basic protocols in wireless sensor network 2. implement State of the Art -IoT architecture 3. experience in deriving theoretical properties of methods involved in IoT.	12
3	Web of Things: Web of Things versus Internet of Things – Two Pillars of the Web – Architecture Standardization for WoT– Platform Middleware for WoT – Unified Multitier WoT Architecture – WoT Portals and Business Intelligence. Cloud of Things: Grid/SOA and Cloud Computing – Cloud Middleware – Cloud Standards – Cloud Providers and Systems – Mobile Cloud Computing – The Cloud of Things Architecture.	The Student can 1. realize the revolution of Internet in mobile Devices, Cloud & Sensor networks. 2. recognize building blocks of Web of Things and Cloud of Things 3. explore Mobile Cloud Computing and Cloud of Things	12
4	Integrating IOT: Integrated Billing Solutions in the Internet of Things Business Models for the Internet of Things - Network Dynamics: Population Models – Information Cascades - Network Effects - Network Dynamics: Structural Models - Cascading Behavior in Networks - The Small-World Phenomenon.	The Student can 1. realize the methods in Integrating internet of Things 2. analyse basic structural and business models for IoT 3. interpret the role of Network dynamics	12
5	Applications: The Role of the Internet of Things for Increased Autonomy and Agility in Collaborative Production Environments - Resource Management in the Internet of Things: Clustering, Synchronization and Software Agents. Applications - Smart Grid – Electrical Vehicle Charging - Case studies: Sensor body-area-network and Control of a smart home.	The Student can 1. interpret the application areas of IoT 2. design IoT applications in different domain and be able to analyze their performance 3. create effective results of IoT future approaches	12

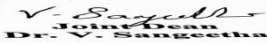
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	The Internet of Things in the Cloud: A Middleware Perspective	Honbo Zhou	2013 (1)	CRC Press
2.	Architecting the Internet of Things	Dieter Uckelmann Mark Harrison Florian Michahelles	2011 (1)	Springer
3.	The Internet of Things: Applications to the Smart Grid and Building Automation	Olivier Hersent, Omar Elloumi and David Boswarthick	2011 (2)	Wiley

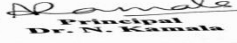
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Networks, Crowds, and Markets: Reasoning About a Highly Connected World	David Easley and Jon Kleinberg	2010 (1)	Cambridge University Press
2.	The Internet of Things, Key applications and Protocols	Olivier Hersent, David Boswarthick, Omar Elloumi	2015 (1)	Wiley.


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UCS – BOS – SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS), TIRUNELVELI - 627011
SEMESTER VI

Programme: UG	Subject: B.Sc., Computer Science
Course code: 19UCSE63	Course Title: Cryptography and Network Security
Category: Elective	Credits: 3

Objectives:

1. To understand the fundamentals of cryptography and its applications.
2. To understand network security threats, securities services and counter measures.

Unit	Detailed Syllabus	Outcomes	Hours
1	Computer and Network security Concepts : Computer Security concepts – The OSI Security Architecture – Security Attacks – Security Services – Security Mechanisms – Fundamental Security Design Principles- Attack Surfaces and Attack Trees – A model for Network Security - Standards. Advanced Encryption Standard: Finite Field Arithmetic – AES structure – AES Transformation Functions – AES Key Expansion – An AES Example- AES Implementation.	The students can 1. know the concepts of X.800 security architecture of OSI 2. understand the types of Security threats and attacks. 3. analyze structure of transformation of AES algorithm.	12
2	Block Cipher Operation: Multiple Encryption and Triple DES – Electronic codebook- Cipher Block chaining mode- Cipher Feedback mode – Output feedback Mode – Counter Mode-XTS-AES mode of block oriented storage devices – Format preserving Encryption. Public key cryptography and RSA : Principles of public key cryptosystems – The RSA algorithm.	The students can 1. analyze the security of multiple encryption scheme. 2. compare and contrast ECB, CBC, CFB, OFB and counter modes of operation. 3. understand the concepts of public key cryptosystem and RSA algorithm.	12
3	Cryptographic Hash Functions : Iterated Hash Functions – Description of MD Hash Family – Whirlpool – SHA 512. Digital Signature: Comparison – Process – Services – Attacks on Digital Signature – Digital Signature schemes – Variations and Applications. Entity Authentication: Entity Authentication and Message Authentication- Password based Authentication – Challenge Response Protocols – Zero Knowledge Protocols – Biometrics.	The students can 1. learn about the structure and concept of SHA-512 and whirlpool 2. analyze about digital signature and its applications. 3. identify the methods of entity authentication and its protocols.	12
4	Key Management: Symmetric key distribution – Kerberos – Symmetric key agreement – public key distribution – Hijacking -. Security at the application layer : PGP and S/MIME : E-mail system – Pretty Good Privacy – Secure Multipurpose Internet Mail Extension . Security at the Transport Layer: SSL and TLS : Security service at transport layer – SSL Architecture – Four Protocols – SSL Message formats – Transport Layer Security.	The students can 1. analyze the symmetric and public key distribution. 2. understand a structure of E-mail and S/MIME. 3. learn the concepts of SSL and TLS protocols.	12
5	Network Access control and cloud security : Network Access control – Extensible authentication protocol – IEEE 802.1x port based network access control – Cloud computing – Cloud security risks and counter measures – Data Protection in the cloud – Cloud security as a service – Addressing cloud computing security concern. Transport Level security: Web security considerations – Transport layer security – HTTPs- Secure shell (SSH).	The students can 1. identify the principle elements of network access control system. 2. understand the concept of cloud computing and security issues. 3. demonstrate TLS and HTTP protocols.	12

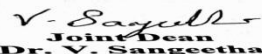
Text Books

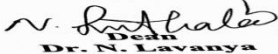
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Cryptography and Network Security	William Stallings	2018 (7)	Pearson Education
2.	Cryptography and Network Security	Behrouz Aforouzan, Debdeep Mukhopadhyay	2016 (3)	MC Graw Hill
3.	Cyber Security: Analytics Technology and Automation	Martti Lehto, Pekka Neittaanmäki	2015	Springer International Publishing Switzerland

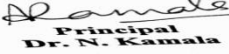
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Computer Forensics and Investigations	Nelson Phillips and Enfinger Stuart	2004	Cengage Learning New Delhi
2.	Cyber Security	Edward Amoroso	2006 (1)	Silicon Press.


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SEMESTER VI

Programme: UG	Subject: Computer Science
Course code:19UCSCL61	Course Title: Graphics and Multimedia Practicals
Category: Core	Credits:2

GRAPHICS AND MULTIMEDIA- LIST OF PRACTICAL

1.

To write a program to draw a line using DDAalgorithm
2.

To write a program to draw a circle using Bresenham’salgorithm.
3.

To write a program to draw a line using Bresenham’salgorithm.
4.

To write a program to scale animage.
5.

To write a program to rotate animage.
6.

To write a program to translate animage.
7.

To write a program for bouncing a ball in the frame in randomposition
8.

To write a program to display as many balls in the frame in randomposition
9.

To write a program to display an image as tiled and cascaded according to the user’soption.
10.

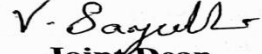
To write a program so that it should first display the image as the size of a pplet then it should be reduced and again it should reduce and so on and finally the image should disappear
11.

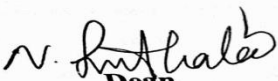
To write a program to move a car.
12.

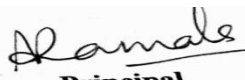
To create a presentation using a multimedia tool.
13.

To create Animation and Morphing using multimedia tool.


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SEMESTER VI

Programme: UG	Subject: B.Sc., Computer Science
Course code:19UCSCL62	Course Title: RDBMS Practicals
Category: Core	Credits:2

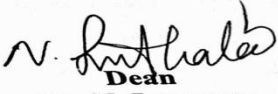
RDBMS - LIST OF PRACTICAL

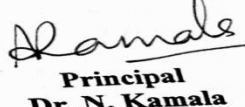
1. To create an employee database with tables department, employee details, address, pay details and project details. Alter the tables and add constraints relevant to the fields in the tables. Insert records into all the tables.
2. To create queries to retrieve relevant information from a table.
3. To create a table from the existing tables.
4. To develop queries to retrieve information from more than one table.
5. To develop summary queries to retrieve relevant information from the tables.
6. To write a PL/SQL program to print multiplication table
7. To write a PL/SQL program to check whether given string is palindrome or not
8. To write a PL/SQL program to find factorial of numbers using function and procedure.
9. To create sms table with the following fields.
(REGNO,NAME,MARK1,MARK2,MARK3). Create sms1 table with the following fields(SNO,SNAME,TOTAL,AVERAGE,RESULT) To prepare student mark list using triggers.
10. To create an employee table with the following fields(ENO, EMPNAME,SALARY,DEDUCTION) Create a salary table with the following fields(ENAME,NETSALARY)

Write a code to calculate the salary of each employee and update the salary table using cursor.


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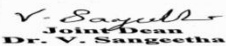

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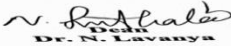
SRI SARADA COLLEGE FOR WOMEN(An Autonomous Institution)
 (Affiliated to Manonmaniam Sundaranar University, Tirunelveli)
 Institution recognised u/s 2(f) and 12(B) of UGC & Reaccredited with—All grade by NAAC
 Ariakulam, Thoothukudi NH, Maharaja Nagar Post, Tirunelveli- 627011
PG Courses-M.Sc., Computer Science[2019-2021]

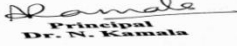
Programme Structure

Sem	Category	Course code	Course title	Hours/week			Credits	Page No.
				L	P	T		
I	Core	19PCSC11	Design and Analysis of Algorithm	4	0	0	4	51
	Core	19PCSC12	Advanced Java programming	4	0	0	4	52
	Core	19PCSC13	Mathematical Foundation for Computer Science	4	0	0	4	53
	Core	19PCSC14	Object Oriented Systems Development	4	0	0	4	54
	Core	19PCSC15	Distributed Computing	4	0	0	4	55
	Core Practical I	19PCSCL11	Algorithm Practicals using C++	0	5	0	2	56
	Core Practical II	19PCSCL12	Advanced Java Practicals	0	5	0	2	57
Total Number Of Papers= L+P= 7			Total	20	10		24	
II	Core	19PCSC21	Advanced Database Management System	4	0	0	4	58
	Core	19PCSC22	Android Programming	4	0	0	4	59
	Core	19PCSC23	Security in Computing	4	0	0	4	60
	Core	19PCSC24	Web Application Development	4	0	0	4	61
	Elective	19PCSE21,	Data Mining and warehousing	4	0	0	3	62
		19PCSE22	Multimedia System					63
		19PCSE23	Cloud Computing					64
	Core Practical III	19PCSCL21	Android Practicals	0	5	0	2	65
	Core Practical IV	19PCSCL22	Web Application Practicals	0	5	0	2	66
Total Number Of Papers= L+P= 7			Total	20	10		23	
III	Core	19PCSC31	Digital Image Processing	4	0	0	4	67
	Core	19PCSC32	Research Methodology	4	0	0	4	68
	Core	19PCSC33	Compiler Design	4	0	0	4	69
	Core	19PCSC34	Soft Computing	4	0	0	4	70
	Elective	19PCSE31	Data Science and data Analytics	4	0	0	3	71
		19PCSE32	Artificial Neural Network					72
		19PCSE33	Xml and web services					73
	Core Practical V	19PCSCL31	MATLAB	0	5	0	2	74
	Core	19PCSPWV1	Project 1	0	5	0	6	75
Total Number Of Papers= L+P= 7			Total	20	10		27	
IV	Core	19PCSPWV2	Project 2		30		16	76
TOTAL				60	60		90	


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Programme Outcome:

- ✓ Students understand all dimensions of the concepts of software application and projects.
- ✓ Design and develop computer programs/Computer based systems in the areas related to Algorithms, Networking, Web design, Cloud computing, Artificial Intelligence, Mobile Applications.
- ✓ Provides technology oriented students with the knowledge and ability to develop creative solutions.
- ✓ Aware them to publish their work in reputed journals.
- ✓ To build a necessary skill set and analytical abilities for developing computer based solutions for real life problems.

Programme Specific Outcome:

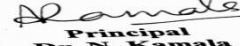
A Graduate with a M.Sc. in Computer Science will have the ability to

- ✓ Use Software Development Tools, Software Systems, and Modern Computing Platforms.
- ✓ Use Current Techniques, Skills and Tools for Programming Practically.
- ✓ Apply Knowledge of Computing to Produce Effective Designs and Solutions for Specific Problems.
- ✓ Entrusting Student Interests in Building their Career in the field of IT By Providing Latest Technologies like IoT, Cloud Computing, Robotics, Big Data, Android App and Soon.
- ✓ Communicate Computer Science Concepts, Designs, and Solutions Effectively and Professionally.
- ✓ Student can develop Minor Projects and Major Projects.


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PCS – BOS – SRI SARADA COLLEGE FOR WOMEN, TIRUNELVELI - 627011
SEMESTER I

Programme: PG	Subject: M.Sc., Computer Science
Course code: 19PCSC11	Course Title: Design and Analysis of Algorithm
Category: Core I	Credits: 4

Objectives:

- To solve problems using the concepts of algorithms
- To understand the network structures through trees and graphs.

Units	Detailed Syllabus	Hours
I	Introduction: Algorithm-Specification-Performance Analysis. Elementary Data Structure: Stacks and Queues- Trees-Dictionaries-Priority Queues.	(12L)
II	Divide And Conquer: General Method-Binary Search- Finding the Maximum And Minimum- Quicksort-Strassen’s Matrix Multiplication.	(12L)
III	The Greedy Method: General Method-Container loading-Knapsack Problem-Job Sequencing with Deadlines-Minimum Cost Spanning Tree-Single Source Shortest Path. Dynamic Programming: General Method-Multistage Graph-All Pairs Shortest Path-Binary Search Tree- 0/1 Knapsack Travelling Salesperson Problem.	(12L)
IV	Basic Traversal and Search Techniques: Techniques for Binary Trees-Graphs-Connected Components and Spanning Trees-Biconnected Components. Backtracking: General Method-8-Queen. Graph Coloring: Hamiltonian Cycle-Knapsack problem.	(12L)
V	Branch and Bound: Method-0/1 Knapsack Problem. NP-Hard And NP-Complete Problem-Basic Concepts-Cook’s Theorem- Clique Decision Problem-Job Shop Scheduling-some simplified NP-Hard problems	(12L)

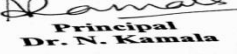
Reference Books:

S. No	Title of the Book	Author	Edition, Year	Publication
1	Fundamentals of Computer Algorithms	Ellis Horowitz, Sartaj Sahni and Sanguthevar Rajasekaran	2008,second Edition	Universities Press(India) Private Ltd
2	Introduction to the Design and Analysis of Algorithms	AnanyLevitin,	Third Edition 2012.	Pearson Education
3	Computer Algorithms	Sara Baase,Allen Van Gelder	Third Edition, 2001	Pearson Education
4	Data Structures and Algorithms in C++	Adam Drozdek	Third Edition, 2006	Thomson Course Technology
5	Data structures and Algorithms made easy	Narasimha Karumanchi	Fifth Edition 2017	Career Monk


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SEMESTER I

Programme: PG	Subject: M.Sc., Computer Science
Course code: 19PCSC12	Course Title: Advanced Java Programming
Category: Core II	Credits: 4

- Objectives:**
- 1. To understand the basic programming constructs of Java language
 - 2. To explore the features of Java by applying the advanced concepts to develop programs.

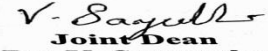
Units	Detailed Syllabus	Hours
I	Classes and Objects : Introduction-General form-Object creation-Constructor-Finalize()-Static member-Inner and Anonymous Inner classes; Inheritance and Polymorphism:-Introduction-Inheriting the variables in a class-Inheriting the methods in a class-Inheritance and Constructors-Abstract classes-Final classes-Interfaces and package- Exception Handling	(12L)
II	J2EE Multi-Tier Architecture : Distributive system-The Tier-J2EE Multi Tier Architecture-client-Tier Implementation-web tier Implementation-Enterprise Java Bean tier implementation-Enterprise information system tier implementation; J2EE Best practices:-Enterprise Application strategy-The Enterprise Application-Client Session management-Web Tier and Java Server Pages-Enterprise JavaBean Tier.	(12L)
III	JDBC Objects : The concept of JDBC-JDBC drivers-JDBC packages-A brief overview of the JDBC process-database connection-Associating JDBC/ODBC bridge with the database statement objects-Result set-Transaction processing-Metadata; JDBC and Embedded SQL:- Tables-Indexing-Inserting into tables- Selecting data from tables-Joining tables-Calculating data-Grouping and ordering data-subqueries.	(12L)
IV	Java Servlets : Java Servlets and Common Gateway Interface Programming-A Simple java Servlet-Anatomy of Java Servlet-Reading Data from a Client-Reading Http Request Headers-Sending Data to Client and Writing the Http Response Headers- Working with Cookies-Tracking Sessions; Java Server Pages:-JSP-JSP Tags Tomcat-Request String-User Sessions Cookies-Session objects.	(12L)
V	Enterprise Java Bean:-Enterprise Java Beans-Deployment Descriptors-Session Java Bean-Entity Java Bean- Message Driven Bean-The JAR File; Java Interface Definition Language and CORBA:-The Concept of object RequestBrokerage- Java IDL and CORBA- The IDL Interface-The Client Side the Server Side-Running the Code-Universal Description, Discovery and Integration(UDDI)-Inside the Universal Description , Discovery and Integration(UDDI).	(12L)

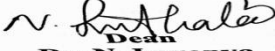
Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Programming with Java	C.Muthu	SecondEdition, 2008.	VNI.
2	TheComplete Reference J2EE	Jim Keogh	2004	TMH(Reprint)
3	The Complete Reference Java	Herbert Schildt	Seventh Edition, 2007.	TMH
4	JavaBeans Programming	Joseph O’Neil	1998	TMH
5	Java Servlet and JSP	Joel Murach	Second Edition	TMH
6	TheComplete Reference JSP	Herbert Schildt	Second Edition, 2007.	TMH

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SEMESTER I

Programme: PG	Subject: M.Sc computer Science
Course code: 19PCSC13	Course Title: Mathematical Foundations for Computer Science
Category: Core III	Credits: 4

Objective:

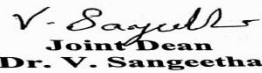
To apply basic concepts for clear understanding of mathematical logic, set theory, matrices, graph theory and to solve practical problems

UNITS	Detailed Syllabus	Hours
I	Mathematical Logic: Introduction-Statements and Notation-Connectives-Normal Forms-The Theory of Inference for the Statement calculus-The Predicate Calculus-Inference theory of the Predicate Calculus	(12L)
II	Set Theory: Introduction- Basic concepts of Set theory-Relations and Ordering-Functions.	(12L)
III	Matrices: Rank of Matrix, Solving System of Equations, Eigen values and Eigen Vectors- Inverse of matrix- Cayley Hamilton Theorem.	(12L)
IV	Graph Theory: Introduction-Graphs-Application of Graphs-Finite and Infinite Graphs-Incidence and Degree-Isolated Vertex, Pendant Vertex and Null Graph Paths and Circuits: Isomorphism- Subgraphs - Walks, Paths and Circuits-Connected and Disconnected graphs-Components-Euler Graphs-More on Euler Graph-Operation on Graphs- Hamiltonian paths and circuits-Travelling Salesman Problem	(12L)
V	Trees and Fundamental Circuits: Properties of Trees-Pendant vertices in trees-Distance and centers in a Tree-Rooted and Binary Tree-Spanning Tree-Fundamental circuits-Finding all spanning trees of a graph-Spanning Tree in the Weighted Graph. Matrix Representation of Graphs: Incidence Matrix-Submatrices-Circuit Matrix-Path matrix- Adjacency Matrix	(12L)

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Discrete Mathematical Structures with Applications to Computer Science	J.P. Trembley and R.Manokar	2009	Tata McGraw Hill Publications.
2	Graph Theory With Applications To Engineering And Computer Science	NarasinghDeo	2007	Prentice-Hall of India Private Limited
3	Discrete Mathematics and its Applications	Kenneth H.Rosen	4th edition, 2002.	Tata McGraw Hill


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Subject: M.Sc., Computer Science

Course Title: Object Oriented Systems Development

Credits: 4

Objectives:

1. To understand the object oriented methodology and analysis.
2. To explore the features of software quality assurance.

Unit	Detailed Syllabus	Hours
I	Overview of Object Oriented Systems Development : Introduction – Two orthogonal views- Development methodology- Object orientation- Overview of the Unified approach. Object basics: Introduction-Object Oriented Philosophy- Object – Attributes – Object respond to messages – Encapsulation – Inheritance – Polymorphism – Object relationship and associations. OOSD life cycle : Introduction – Software development process – OOSD Use case Driven Approach – Reusability	(12L)
II	Object Oriented Methodology:Introduction- Survey of some object oriented methodologies- Rumbaughetal’s methodology- Booch methodology – Jacobson methodology – Pattern. Unified Modeling Language - Introduction – static dynamic model – UML diagrams – UML class diagrams – Use case- UML dynamic modeling – packages and model organization.	(12L)
III	Object Oriented Analysis : Introduction – Why analysis is a Difficult Activity-Business Object Analysis, Use case driven object oriented analysis – Effective documentation. Classification : Introduction – Classification theory – Naming classes. Identifying object relationships, attributes, methods : Association – Super sub class relationship – Aggregation.	(12L)
IV	OOD process and design axioms : Introduction – OOD process- Design axioms – Corollaries – Design pattern. Designing classes : Introduction – The Object Oriented Design Philosophy- UML Object Constraint Language- Designing classes process – Class visibility – Refining attributes – Designing methods and protocols – Packages and managing classes. Access layer: Introduction - Object Store and persistence – DBMS – Logical and physical Database Management System – Distributed Databases and Client Server Computing – Next generation of client Server Computing – Multidata base System – Design Access layer classes.	(12L)
V	Software Quality Assurance : Introduction – Quality Assurance Tests – Object Orientation on Testing – Testing strategies – Test Cases- Test Plan – Continuous Testing – Myer’s Debugging Principles. Ssystem Usability and Measuring User satisfaction : Introduction – Usability Testing.	(12L)

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Object Oriented Systems Development using UML	Ali Bahrami	2008	Tata McGraw-Hill Education Private Limited
2	Object Oriented Analysis, Design and Implementation	BrahmaDathan, Sarnath	2010	Universities Press
3	Object-Oriented Analysis and Design Using UML	Mahesh P. Matha	2012	PHI Learning Private Limited
4	Systems Analysis and Design : An Object – Oriented Approach with UML	Dr,Allan R,Dennis	Fifth Edition 2015	Wiley Publications
5	An Object – Oriented Systems Analysis and Design Using UML	Simon, Bennett,Steve McRobb, Roy Farmer	Fourth Edition 2010	Tata McGraw-Hill Education Private Limited

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PCS – BOS – SRI SARADA COLLEGE FOR WOMEN, TIRUNELVELI – 627011

SEMESTER I

Programme: PG	Subject: M.Sc., Computer Science
Course code: 19PCSC15	Course Title: Distributed Computing
Category: Core V	Credits: 4

Objectives:

- 1. To understand the types of networks, message passing, Synchronization.
- 2. To learn distributed file systems and process migration.

Units	Detailed Syllabus	Hours
I	Fundamentals: What is Distributed Operating System – Evolution of Distributed Computing System – Distributed Computing System Models – Why are Distributed Computing Systems gaining popularity – What is a Distributed Computing System – Issues in Designing Distributed Computing System – Introduction to Distributed Computing Environment. Introduction to Computer Networks – Network types – LAN technologies–WAN technologies – Communication protocols – Internetworking –Network Management Technolgies -Internetwork case study: The Internet- ATM Technology-ATM Networks.	(12L)
II	Message Passing: Introduction Desirable features – Issues in PC Message Passing – Synchronization – Buffering – Multidatagram Messages – Encoding and Decoding – Process Addressing – Failure Handling – Group Communication-Many to Many communication.	(12L)
III	Remote Procedure Calls : RPC models – Transparency of RPC–Stub generation–RPC messages–Marshaling arguments and results–Exception Handling–Lightweight RPC. Distributed Shared Memory: Introduction – General Architecture of DSM system – Design and Implementation Issues of DSM – Granularity – Structure of Shared Memory – Consistency Models –Implementing sequential consistency model – A release consistent DSM-Replacement Strategy – Thrashing.	(12L)
IV	Synchronization: Introduction – Clock Synchronization – Event Ordering – Mutual Exclusion – Deadlock –Deadlock prevention and Detection- Election Algorithm–Process Management: Introduction-Process Migration– Threads.	(12L)
V	Distributed File System: Introduction – Desirable features – File Models – File Accessing Models – File Sharing Semantics – File Caching Schemes – File Replication – Fault Tolerance – Atomic Transactions – Design Principles.	(12L)

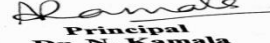
Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Distributed Operating Systems – Concepts and Design	Pradeep K Sinha	2003	PHI Learning Private Limited
2	Distributed Operating Systems	Andrew S Tanenbaum	First Edition, 2002	PHI Learning Private Limited
3	Operating Systems Concepts	Abraham Silberchalz Peter B. Galvin, G.Gagne	Seventh edition,2010	Addision Wesley Publishing Co.,
4	Operating Systems : Principles and Design	Pabitra Pal Choudhury	2009	PHI Learning Private Limited
5	Programming Distributed Computing Systems: A Foundational Approach	<u>Carlos A. Varela</u> , <u>Gul Agha</u>	2013	The MIT Press


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SEMESTER I

Programme: PG	Subject: M.Sc.,Computer Science
Course code: 19PCSCL11	Course Title: Algorithm Practicals using C++
Category: Core VI Practical I	Credits: 2

Objectives:

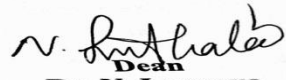
To understand the basis of algorithmic concepts and to implement them.

Programs should include but not limited to:

- 1.Implementation of stack
- 2. Implementation of queue
- 3. Implementation of priority queue
- 4. Implementation of Binary search
- 5. Implementation of Quick sort
- 6. Implementation of Strassen’s matrix multiplication
- 7. Implementation of prim’s algorithm
- 8. Implementation of kruskal’s algorithm
- 9 . Implementation of All pair shortest path problem
- 10.Implementation of N Queen problem
- 11.Implementation of DFS
- 12.Implementation of BFS
- 13. Implementation of Travelling sales person problem
- 14. Implementation of Knapsack using greedy


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SEMESTER I

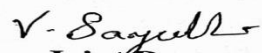
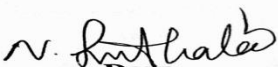
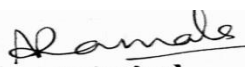
Programme: PG	Subject: M.Sc., Computer Science
Course code: 19PCSCL12	Course Title: Advanced Java Practicals
Category:Core VII Practical II	Credits: 2

Objective:

To explore the benefits of language concepts using Java.

Programs should include but not limited to:

1. Write a java code to demonstrate class with constructors
2. Write a java code to demonstrate Inheritance
3. Write a java code to demonstrate Interface
4. Write a java code to demonstrate packages
5. Write a java code to demonstrate Custom Exception
6. Write a java code to create a connection to access database from hard disk using domain server name and display a message SUCCESSFULLY CONNECTED, if the connection is created.
7. Write a java code to fetch the table information using JDBC.
8. Write a java code to update a particular record using JDBC.
9. Create a servlet and display a message using hyperlink .
10. Write a servlet code to change the Explorer background color
11. Write a HTML code to capture the user Input name and E-mail ID and display the information in the next form using JSP
12. Write a simple JSP code to create a form and validate a password
13. Write a java servlet to get information in the first form and display in second form

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 SEMESTER –II

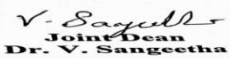
Programme: PG	subject: M.Sc., Computer Science
Course code: 19PCSC21	Course Title: Advanced Database Management System
Category: Core VIII	Credits: 4

- Objective:**
- To learn the fundamental data models and conceptualize and depict the database system using ER Diagram.
 - To make a study of SQL and relational database design using oracle.

Units	Detailed Syllabus	Hours
1	Introduction To Relational Model: Structure of Relational Databases- Database Schema – Keys – Schema Diagrams – Relational Query Language – Relational Operations. Formal Relational Query Languages: The Relational Algebra – The Tuple relational Calculus – The Domain Relational Calculus.	(12L)
2	Normalizations And Relational Database Design: Introduction - Software Development Life Cycle - Database Development Life Cycle - Automated Design Tools. Functional Dependency and Decomposition - Functional Dependency - Decomposition. Normalization - Introduction - Normalization - Normal Forms - BCNF - 4 NF - 5 NF. Relational Database Design : Features of good relational Design – Atomic Domains and First Normal Forms – Decomposition Using Functional Dependencies.	(12L)
3	Indexing And Hashing : basic concepts –ordered indices –B+ tree index file-multiple access –static hashing –Dynamic hashing –comparisons of ordered indexing and hashing –bitmap indices. Transaction concept-A simple transaction concept –storage structure- Transaction Concepts - Concurrency Control - Locking Methods - Timestamp Methods - Optimistic Methods.	(12L)
4	Concurrency Control : Lock based Protocols – Deadlock Handling – Multiple Granularity – Timestamp Based Protocols – Validation Based Protocols – Multiversion Schemes – Snapshot Isolation – Insert Operations, Delete Operations and Predicate Reads. Recovery Systems : Failure Classification – Storage – Recovery and Atomicity – Recovery Algorithm – Buffer Management.	(12L)
5	Database System Architecture : Centralized and Client Server Architectures – Server System Architectures – Parallel Systems – Distributed Systems. Parallel Databases: Introduction – I/O parallelism – Interquery parallelism – Intraquery parallelism – Intraoperation parallelism – Interoperation parallelism – Query Optimization. Distributed Databases : Homogeneous and Heterogeneous Databases – Distributed Data Storage – Distributed Transactions.	(12L)

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Advanced Database Management Systems	EktaThirani,MonikaSoni,Rahul Sharma	First Edition,2013	Neelkanth Publishers
2	Database System Concepts	Abraham Silberschatz, Henry F. Korth and S.Sudarshan.	Sixth Edition 2011	McGrawHill International Edition
3	Database Systems Concepts-Design and Applications	S.K. Singh	2006.	Pearson Education Pte. Ltd., New Delhi
4	An Introduction to Database Systems	C.J. Date and others	Eighth Edition 2006	Pearson Education Pte. Ltd., New Delhi:.
5	Database Systems: A Practical Approach to Design Implementation and Management	Thomas Connolly,CarolynBegg	Fourth Edition 2008	Pearson Education Pte. Ltd., New Delhi



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SEMESTER-II

Programme: PG	Subject: M.Sc., Computer Science
Course code: 19PCSC22	Course Title: Android programming
Category: Core IX	Credits: 4

Objectives:

1.
- To learn the fundamentals of android programming using the Android SDK.
2.
- To learn to create more application

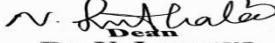
Units	Detailed Syllabus	Hours
1	Android development basics – Honey Comb, Ice Cream Sandwich and Jelly Bean features – Hardware Tools – Software Tools – Tuning up your hardware – Installing and configuring your support tools – Getting the Java Development Kit – Acquiring the Android SDK – Getting the total Eclipse – Navigating the Android SDK – Targeting Android platforms.	(12L)
2	Starting a new project in Eclipse – Understanding the build target and min SDK version settings – Setting up an emulator – Creating launch configurations – Running the Hello android app – Understanding project structure – Developing the user interface – Adding an image to your application – Creating a launcher icon for the application	(12L)
3	Fragments – Adding fragments dynamically – Life Cycle of a fragment – Interactions between fragments – Calling built-in applications using Intents – Understanding the Intent object – Using Intent filters – Adding categories – Understanding the components of a screen – Linear Layout – Absolute Layout – Table Layout – Relative Layout – Frame Layout	(12L)
4	Using Basic views – TextView View – Button – Image Button – EditText – CheckBox – Toggle Button – Radio Button – Radio Group View – Progress Bar View – AutoComplete TextView View – Using Picker Views – Time picker view – Date picker view.	(12L)
5	Using List Views to Display Long Lists - ListView View - Using the Spinner View - Using Image Views to Display Pictures - Gallery and ImageView Views – ImageSwitcher - GridView - Using Menus with Views - Creating the Helper Methods- Options Menu - Context Menu - Some Additional Views - AnalogClock and DigitalClock Views – WebView.	(12L)

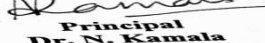
Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Android programming- Unleashed	B.M.Harwani	First Edition 2013	Pearson Publications
2	Android programming-	Murach	Second Edition 2016	Shroff Publishers and Distributers Private Limited
3	Android programming- Pushing the Limits	Erik Hellman	First Edition 2014	Wiley Publications
4	Android Application Development for Dummies	Michael Burton, Donn Felker	2nd Edition 2012	Wiley Publications
5	Beginning Android 4 Application Development	Wei Meng Lee,	First Edition, 2012	Wiley Publications


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SEMESTER II

Programme: PG	Subject: M.Sc., Computer Science
Course code: 19PCSC23	Course Title: Security in Computing
Category: Core X	Credits: 4

Objective:

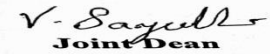
1. To develop strategies to protect organization information assets from common attacks.
2. To understand how security policies, standards and practices are developed.

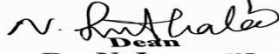
Units	Detailed Syllabus	Hours
1	Cryptography : Terminology and Background – Substitution ciphers - The Caesar cipher, The Vernam cipher, Book cipher; Transposition ciphers. DES – AES - Public key encryption - RSA encryption - Possible attacks on RSA-Uses of Encryption.	(12L)
2	Program Security : Secure programs – Fixing faults, Unexpected behaviour, Types of flaws; Nonmalicious Program errors Virus and other malicious code – Kinds of malicious code, How Viruses attach, Document viruses, How viruses gain control, Homes for viruses, Virus Signatures, The source of Viruses, Prevention of Virus Infection. Targeted malicious code – Trojans, Trapdoors, Salami Attack.	(12L)
3	Security in Databases : Security Requirements - Integrity of the database, Element Integrity, Audibility, Access control, User authentication, Availability, SQL injection; Reliability and Integrity – Protection features from the operating system, Two-phase update, Redundancy/Internal consistency, Recovery, Concurrency/Consistency, Monitors; Sensitive data - Access decisions, Types of disclosures, Security versus Precision; Inference – Direct Attack , Indirect Attack; Multilevel databases – Granularity , Security Issues.	(12L)
4	Security in Networks : Threats in Networks – What makes a network vulnerable? Categories of attack, Who attacks Networks? Network Security Controls – Security Threat analysis, Effect of security in architecture of network, Encryption, Content integrity, Strong authentication, Access controls, Wireless security, Alarms and alerts, Honeypots, Traffic flow security. Firewalls – Design of firewalls, Types of Firewalls, Personal Firewalls, Comparison of Firewall Types.	(12L)
5	Legal and Ethical Issues in Computer Security : Protecting Programs and data – Information and the law - Redress for software failures – Selling correct software, Reporting software flaws. Computer Crime : Why a separate category for computer crime is needed, Why computer crime is hard to define, Why computer crime is hard to prosecute, Indian Cyber law offences, Cyber Pornography, Accessing Protected System, Tampering with Computer Source code. Ethical Issues in Computer Security : Differences between the Law and the Ethics, Studying Ethics, Ethical Reasoning-Web Services HML firewalls.	(12L)

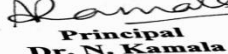
Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Security in Computing	Charles P. Pfleeger, Shari Lawrence Pfleeger	Fourth Edition,2007	Pearson Education
2	Management of Information Security	Michael Whitman, Herbert J. MattordS.Sudarshan,	Third Edition,2010	Course Technology
3	Cryptography and Network Security:Principles and Practices	William Stallings	Fifth Edition,2010	PHI
4	Cryptography and Information Security	V.K.Pachghare	2013	PHI


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SEMESTER-II

Programme: PG	Subject: M.Sc., Computer Science
Course code: 19PCSC24	Course Title: Web Application Development
Category: Core XI	Credits: 4

Objectives:

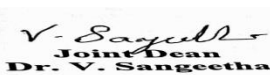
1. To understand the basic structure of .Net and to implement the query string, cookies, controls.
2. To store the data's in MS Access.

Units	Detailed Syllabus	Hours
1	Asp.Net Introduction:.NET Programming Framework, , The Common language runtime and .NET Class Library, Features of ASP.NET and Visual studio .NET. .NET language: Data types - declaring variables - Scope and accessibility - Variable Operators & Operations - Type conversions - Object based manipulations - Conditional and Loop structures - Functions and subroutines. Types, Objects and Namespaces: Class – object - constructor - Value types and Reference types. Advanced class programming: Inheritance – polymorphism – Interfaces - Exception handling.	(12L)
2	Asp.Net Applications – File types, Simple Application from start to finish. Code behind compilation - Global .aspx application files, ASP.Net configuration. Web Form fundamentals: Simple page applet-server controls - Deeper look in HTML controls - page classes Web control classes: Auto postback and web control event- Generating Automatic greeting card.	(12L)
3	Validation And Rich Controls: Calendar and Ad Rotator control - Validation Controls – Simple validation example – Regular expression concepts- Customer form validation. State management: view state - custom cookies - Session state - Session state configuration - Application state. Tracing ,Logging and Error handling.	(12L)
4	Objects: ASP.NET Intrinsic Objects: HTTP Request Object, HTTP Response Object, HTTP Server Utility Object, Object Context Object Data Access with ADO.NET: Overview of ADO.NET Objects - Characteristics of ADO.NET - ADO.NET object model. ADO.NET data access: SQL basics – select, update, insert, delete statements. Accessing data - Creating a connection – Defining select statement - Using command with data reader - Updating data. Accessing disconnected data.	(12L)
5	Comparing The Template Control: The Data list - The Data grid - The Repeater - Selecting Items - Editing Items - Paging with Data Grid - Sorting with Data grid. Web Server and IIS manager, Web services Architecture: The Open Standards Plumbing - WSDL- SOAP- UDDI. Communicating with web service. Using XML: XML classes – XML Validation.	(12L)

Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Web Application Development with Yii 2 & PHP	MazrkSafronov, Jeffrey Winesett	First Edition 2014	Packt Publishing
2	Word Press Web Application Development	RakhithaNimeshRatnayake	Second Edition 2015	Packt Publishing
3	ASP.Net Complete Reference	Mathew Mac Donald	2005	TMH
4	Meteor Cookbook	Isaac Strack	First Edition 2015	Packt Publishing
5	HTML5 Web Application Development By example	J.M.Gustafson	First Edition 2015	Packt Publishing
6	ASP.Net and VB.Net Web Programming	Crouch Matt J	2002.	Addison Wesley
7	Programming ASP.Net	J.Liberty, D.Hurwitz	Third Edition 2006	O'REILLY,


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SEMESTER-II
ELECTIVE

Programme: PG	Subject: M.Sc., Computer Science
Course code: 19PCSE21	Course Title: Data Mining and Warehousing
Category: Elective I	Credits:3

Objective:

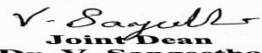
1.
- To understand and implement models and algorithms in data mining.
2.
- To analyze the data , identify the problems and choose the relevant models and algorithms to apply.

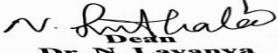
Units	Detailed Syllabus (all units of same size and duration)	Hours
1	Introduction : Basic Data Mining Tasks - Data Mining Versus Knowledge Discovery in Databases - Data Mining Issues - Data Mining Metrics - Social Implication of Data Mining - Data Mining from a Database Perspective. Data Warehouse : What is data warehouse? – A multidimensional data model – from tables and spread sheets to Data cubes – Stars, Snowflakes, and Fact Constellations: Schemas for multidimensional databases – Measures : Their Categorization and Computation –Data Warehouse architecture – From Data Warehousing to Data Mining.	(12L)
2	Classification : Introduction – Statistical - Based Algorithms - Distance-Based Algorithms - Decision Tree-Based Algorithms - Neural Network - Based Algorithms - Rule-Based Algorithms - Combining Techniques.	(12L)
3	Clustering : Introduction - Similarity and Distance Measures - Outliers - Hierarchical Algorithms - Partitional Algorithms - Clustering Large Databases - Clustering with Categorical Attributes	(12L)
4	Association Rules : Introduction - Large Itemsets - Basic Algorithms - Parallel and Distributed Algorithms - Comparing Approaches - Incremental rules - Advanced Association Rule Techniques - Measuring the Quality of Rules.	(12L)
5	Web Mining : Introduction - Web content Mining - Web Structure Mining - Web Usage Mining. Spatial Mining : Introduction - Spatial Data Overview - Spatial Data Mining Primitives -Generalization and Specialization - Spatial rules - Spatial Classification Algorithms - Spatial Clustering Algorithms. Temporal Mining – Time Series Sequences.	(12L)

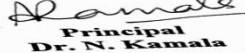
Reference books

S.No	Title of the Book	Author	Edition, Year	Publication
1	Data Mining Concepts and Techniques	Jiwei Han, MichelenKamber	2001	Morgan Kaufmann Publishers an Imprint Of Elsevier
2	Data Mining Techniques	ArunK.Pujari,	2001	Universities Press(India) Limited
3	Data warehousing, Mining and Visualization: core concepts	George M. Marakas	FirstEdition, 2002.	Printice Hall
4	Introduction to Data Mining	PangNing Tan, Michael Steinbach, Vipin Kumar	2008	Pearson
5	Data Mining	Soman K. P, ShyamDiwakar, V.	2008	Prentice Hall
6	Data mining Introudutory and advance concepts	MargetH.Dunham	2003	Pearsoneducation 2003
7	Introduction to Data mining with case studies	G.K gupta	2007	Pearson education


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SEMESTER-II
ELECTIVE

Programme: PG	Subject: M.Sc.,Computer Science
Course code:19PCSE22	Course Title: Multimedia System
Category:Elective I	Credits:3

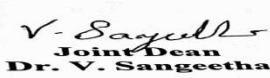
Objective:
To understand concepts in multimedia technology and recent trends in multimedia applications.

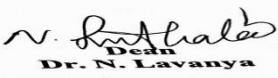
Units	Detailed Syllabus	Hours
1	Uses of Multimedia Information: Defining the scope of multimedia, Hypertext and Collaborative research, Multimedia and personalized computing, Multimedia on the map, Emerging applications, The challenges. The convergence of computers, Communications, and entertainment products: The technology trends, Multimedia appliances, Hybrid Devices, Designers perspective, industry perspective of the future, Key challenges ahead, Technical, regulatory, Social.	(12L)
2	Digital Audio Representation and processing : Uses of Audio in Computer Applications, Psychoacoustics, Digital representation of sound, transmission of digital sound, Digital Audio signal processing, Digital music making, Speech recognition and generation, digital audio and the computers. Video Technology : Raster Scanning Principles, Sensors for TV Cameras, Colour Fundamentals, Colour Video, Video performance Measurements, Analog video Artifacts. Worldwide television standards. Digital Video and Image Compression : Video compression techniques, standardization of Algorithm, The JPEG Image Compression Standard, ITU-T Recommendations, The EPEG Motion Video Compression Standard, DVI Technology.	(12L)
3	Operating System Support for Continuous Media Applications: Limitation of Work station Operating system, New OS support, Experiments Using Real Time Mach. Middleware System Services Architecture: Goals of Multimedia System services, Multimedia system services Architecture, Media stream protocol. Multimedia Devices, Presentation Services, and the User Interface: Client control of continuous multimedia, Device control, Temporal coordination and composition, toolkits, hyper applications. Multimedia File systems and Information Models: The case for multimedia information systems, The file system support for continuous Media. Content- based Retrieval of Unstructured Data. Multimedia presentation and Authoring: Design paradigms and User interface, barriers to wide spread use, research trends.	(12L)
4	Multimedia Services over the Public Networks: Requirements, Architecture, and protocols, Network services, applications. Multimedia Interchange : Quick time Movie File Format, QMFI, MHEG (Multimedia and Hypermedia Information Encoding Expert Group), Format Function and representation, Track model and Object model, Real Time Interchange. Multimedia conferencing : Teleconferencing Systems, Requirements of Multimedia Communications, Multimedia Conferencing Architecture.	(12L)
5	High Definition Television and desktop computing : Video versus Computing-Viewing Conditions- Quality-HDTV,ATV,EDTV,IDTV-HDTV Standards – Standardization Issues HDTV standards. Knowledge based Multimedia systems - Anatomy of an Intelligent Multimedia system	(12L)

Reference books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Multimedia Systems	John F.Koegel Buford	2016.	Pearson Education, New Delhi
2	Multimedia – Making it work	Tay Vaughan	Fifth Edition.2003	TMH
3	Multimedia:Computing , Communication and Application	Ralf Steinmetz and KlaraNahrstedt	2009	Pearson Education, New Delhi


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 SEMESTER-II
 ELECTIVE

Programme: PG	Subject: M.Sc.,Computer Science
Course code:19PCSE23	Course Title: Cloud Computing
Category: Elective I	Credits:3

- Objectives:**
- To understand the core concepts of cloud computing.
 - To understand the use of cloud storage in storage systems.

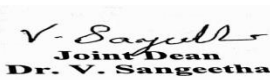
Units	Detailed Syllabus	Hours
1	Cloud computing – An Overview: Introduction – History of cloud computing – Characteristics of cloud – Cloud computing model – Advantages and disadvantages of cloud computing – Security, Privacy and trust – Virtualization – Next generation of cloud computing. Cloud computing Architecture : Introduction - Cloud Architecture – Cloud computing models – Deployment models – Identity as a service	(12L)
2	Virtualization in Cloud: Virtualization – Implementation of Virtualization - Virtualization support at the OS level – Advantages of Virtualization – Application Virtualization - Virtualization implementation techniques – Hardware virtualization – Types of Virtualization – Logical cloud computing model – Virtualization for Data-centre. Security Issues and challenges in Cloud computing: Introduction - Security challenges in Cloud computing – Information Security in Cloud computing – Security, Privacy and Trust. Security Management: Introduction – Security in reference architecture – Security Issues in cloud computing – Types of attackers – Security risk in cloud computing.	(12L)
3	Virtualization System specific Attacks : Attacks in cloud computing environment – Attacks in Hypervisor – Security challenges – Desktop virtualization Security – Planning and deployment for secure virtualization. Web Services: Amazon web services – Microsoft Azure – Google App Engine. Cloud Storage: Overview- Cloud Storage Provider.	(12L)
4	Service Oriented Architecture: SOA components – Design principles of SOA – SOA requirements – Benefits of SOA – Significance of SOA in cloud computing – Enterprise Service Bus – Web Services – Recurring Architectural Capabilities. Migrating Applications to the Cloud computing: Motivations for migration – Issues in migrating the applications to the cloud – Types of migration – Planning for migrating the application to the cloud – Migration Roadmap. Cloud Computing Applications: Business applications – Finance and banking applications – Cloud computing in education.	(12L)
5	Standards in Cloud Computing: Standardization activities – Challenges – Fields of standardization - Standardization organizations in Cloud Computing. Mobile Cloud Computing : Needs of mobile Cloud Computing – Mobile Cloud Computing Architecture – Technologies for MCC – MCC Applications – Challenges in building applications – Platforms. Micro services: Need of micro services – Micro service architecture – Benefits of Micro services – Drawbacks of micro services – Communication mechanisms – Decentralized data management - Essential ckeck - lists for migration from monolithic to micro services.	(12L)

Reference books

S.No	Title of the Book	Author	Edition, Year	Publication
1	Cloud Computing	V.K.Pachghare	2016.	PHI
2	Cloud Computing	Michael Miller	2009	IPearson Education, New Delhi
3	Cloud Computing	Anthony T.Velte,TobyJ.Velte,PobertEl senneter	2010	TMH
4	Cloud Computing	Kumar Saurbh	2011	Insights into New-Era Infrastructureel, Wiley India
5	Cloud Computing : Implementation.	John W.Rittinghouse and James F. Ransome	2010	CRC press
6	Cloud Computiongibel	Barriesosisnae	2010	Willey publishing



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SEMESTER II

Programme: PG	Subject: M.Sc., Computer science
Course code: 19PCSCL21	Course Title: Android Practicals
Category: Core XII Practical III	Credits:2

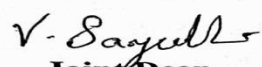
Objectives:

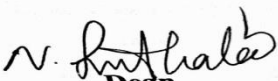
- 1. To understand concepts of Android Programming.
- 2. To develop android application.

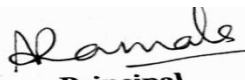
Develop an android application for the following,

- 1. Passing the data using intent.
- 2. Perform addition of two numbers using table layout.
- 3. Open a new activity while clicking a button.
- 4. Create a login form using Text View, Edit Text and Button control.
- 5. Create list view with check box values.
- 6. Know the current state of toggle button.
- 7. Upload the file using progress bar control.
- 8. Design auto complete with suggestions.
- 9. Create date and time picker dialog.
- 10. Load the list while clicking another list using list view.
- 11. Create simple photo gallery using Image View.
- 12. Handle the click events of floating context menu.


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SEMESTER II

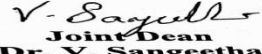
Programme: PG	Subject: M.Sc., Computer Science
Course code: 19PCSCL22	Course Title: Web Application Practicals
Category: Core XIII Practical IV	Credits:2

Objective:

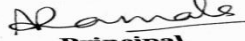
To write programs using web browsers.

- 1. Change the background color using RGB()
- 2. Implement Currency Converter
- 3. Demonstrate Event Tracker
- 4. Write a program using file uploading control
- 5. Write a program to create a registration page using validation controls
- 6. Write a program using Session State and Application State variables
- 7. Write a program to demonstrate the use of Session.Timeout
- 8. Write a program using QueryString.
- 9 Write a program to create Cookies
- 10. Write a program using DataGrid and DataList controls
- 11. Write a program to search and store student data in MSAccess


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Programme: PG	Subject:M.Sc., Computer Science
Course code:19PCSC31	Course Title: Digital Image Processing
Category:Core	Credits:4

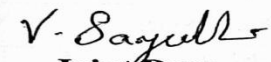
- Objectives:**
1. To understand basic concepts of image processing
 2. To use built-in image processing functions in MATLAB and implement various operations on images.

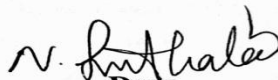
Unit	Detailed Syllabus	Outcomes	Hours
1	MATLAB & Image Processing Fundamentals Introduction : Fundamentals - The MATLAB Desktop - Using Mat lab Editor /Debugger getting help-saving and Retrieving work session data - Digital Image Representation - Image I/O and Display – Classes and Image Types - M-Function Programming. Intensity Transformation and Spatial Filtering : Background - Intensity transformation - histogram Processing and function Plotting - Spatial filtering - Image processing toolbox standard spatial filters.	1. The students use MATLAB and the image processing toolbox to implement intensity transformation functions. 2. The students have knowledge about Linear and Non Linear spatial filters. 3. The students can use a set of basic functions for fuzzy intensity transformation and spatial filtering.	12
2	Filtering Techniques Filtering in Frequency Domain : The 2-D Discrete Fourier transform - Computing and Visualizing the 2-D DFT in MATLAB – Filtering in the Frequency domain - Obtaining frequency domain filters from spatial filters - High pass (sharpening) frequency domain filters. Image Restoration and Reconstruction : A model of the image degradation / restoration process - Noise models - Restoration in the presence of Noise only – Periodic Noise reduction using Frequency Domain Filtering – Modeling the Degradation Function - Direct Inverse Filtering - Wiener filtering.	1. The students how to use toolbox functions for computing forward and inverse 2-D fast fourier transforms. 2. The students can understand the concept of fourier spectrum and how to implement filtering in the frequency domain. 3. The students can know the concept of linear restoration methods- the Wiener filter, iterative, Nonlinear methods- richardson, Lucy, Maximum-likelihood estimation.	12
3	Color Image Processing : Colour image representation in MATLAB - converting to other color spaces - The basics of color image processing - Color transformation - Spatial Filtering of colour images. Working directly in a RGB vector space Wavelets : Background - The fast wavelet transform - Working with wavelet decomposition structures - The inverse wavelet transform- Wavelets in image processing.	1. The students to deal with pseudo color and full color image processing 2. The students can aware with color models applicable to digital image processing 3. the students can understand the concept of edge detection and region segmentation	12
4	Image Compression : Background - Coding Redundancy - Spatial Redundancy - Irrelevant information- JPEG Compression. Morphological image Processor : Preliminaries - Dialation and Erosion - Combining Dialation and erosion - Labelling connected components – Morphological reconstruction - Gray scale morphology	1. The students can understand the fundamentals of digital image compression through the removal of coding redundancy , spatial redundancy, temporal redundancy and irrelevant information. 2. The students can have an idea about morphological concepts and techniques.	12
5	Image Segmentation : Image segmentation - Point, line and edge detection - Line detection using the Hough transform – Thresholding – Region - Based segmentation using the Watershed transform. Representation and Description : Background – Representation - Boundary Descriptors.	The student can able to 1.segment an image, which is an essential step a most automated pictorial pattern recognition 2. the concepts of object recognition algorithms 3. basic utility of M-functions	12

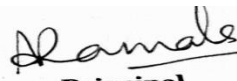
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Image Processing Using MATLAB	Rafael C.Gonzalez, Richard E.Woods and Steven L.eddins	2011 (2)	Tata McGraw Hill Education Private Limited, 2011.
2	Image Processing: Analysis and Machine Vision	Milan Sonka, Roger Boyle, and Vaclav Hlavac	2006	Tata McGraw Hill Education Private Ltd.
3	Fundamentals of Digital Image Processing: A Practical Approach with Examples in Matlab	Chris Solomon and Toby Breckon	2005	Tata McGraw Hill Education Private Limited
4	Digital Image Processing and Analysis: Human and Computer Vision	Scott E. Umbaugh	(2)	CRC PRESS
5	Introduction in computer image processing	Andremarrie	2000	Springer science


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SEMESTER-III

Programme: PG	Subject: M.Sc., Computer Science
Course code:19PCSC32	Course Title: Research Methodology
Category:Core	Credits:4

Objectives:

1. Get a view of how to choose research problem
2. Able to design the research and explore the features of data collection, data preparation and aware about report writing.

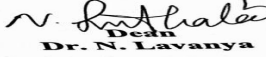
Unit	Detailed Syllabus	Outcomes	Hours
1	Research Methodology : Introduction — Objectives of Research — Types of Research — Research approaches — Significance of Research — Research Methods versus Methodology — Research and Scientific method — Research process — Criteria of good Research — Problems encountered by Researchers in India. Defining the Research Problem : What is a Research problem - Selecting the Problem — Techniques involved in defining a problem.	The Students can 1.define and describe the Objectives and the different Research Types and approaches of Research Methodology. 2.identify and discuss the Issues and concepts salient to the Research process. 3.build up skills in defining a problem.	12
2	Research design : Meaning of research design — Need for Research Design — Features of Good Design — Important concepts relating to Research design — Different Research designs — Basic Principles of Experimental Designs — Important Experimental designs — Informal Experimental designs — Formal Experimental designs. Design of sample surveys : Introduction - Sample design - Types of sampling designs — Non probability sampling — Probability sampling	The Students can 1. explain the Meaning, Features, and the important concepts relating to research design. 2. propose and distinguish appropriate research designs and methodologiesto apply to a specific researchproject. 3. develop skills in SampleDesign	12
3	Measurements and scaling : Quantitative and qualitative data— Classifications of measurement scales — Goodness of measurement scales —Sources of error in measurement — Scaling — Scale classification bases — Scaling techniques — Comparative Scaling Techniques — Non- Comparative Scaling Techniques. Data Collection : Collection of Primary Data — Observation Method — Interview method — Collection of data through Questionnaires — Collection of data through Schedules — Difference between Questionnaire and schedule — Guidelines for constructing Questionnaire/schedule — Some other methods of data collection — Collection of secondary data — Selection of Appropriate method for data collection	The Students can 1.expand skills in Qualitative and quantitative Data Analysis & presentation. 2.exhibit the ability to choose comparative and Non- comparative Scaling techniques. 3.recognize the use of Data Collection.	12
4	ANOVA Data Preparation : Data preparation process — Questionnaire checking — Editing — coding — classification — tabulation — Graphical representation — Data cleaning — Data adjusting — Some problems in preparation process — Types of analysis — Statistics in research. Analysis of variance : The ANOVA technique — One way ANOVA — Two way ANOVA	The Students can 1. develop Skills in different Data preparationProcess. 2. identify some problems in Data preparationProcess 3. demonstrate an ability to use The ANOVA technique, One way ANOVA/ two way ANOVA	12
5	Interpretation and Report Writing : Meaning of interpretation —Technique of interpretation — Precaution in Interpretation — Significance of Report Writing — Different Steps in Writing Report — Layout of the Research Report — Types of Reports — Mechanics of Writing a Research Report. Algorithmic Research : Algorithmic Research Problems — Types of Solution Procedure/ Algorithm — Steps of Development of Algorithm — Comparison of Algorithms — Computer and Researchers.	The Students can 1. distinguish the concept of Interpretation and Develop advanced Critical thinking Skills. 2. understand and implementLayout Types and Mechanics of Writing a research Report 3. demonstrate Enhanced ReportWriting Skills.	12

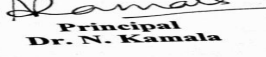
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Research Methodology, Methods and Techniques	C.R.Kothari	2010 (3)	New Age International Publishers
2	Research Methodology	R.Panneerselvam	2009	PHI
3	Research Methodology	D.K.Bhattacharyya	2003 (1)	EBP
4	Research methodology –a step by step guide for beginners	Ranjithkumar	(4)	PHI
5	Research methods	Patrick magnel andsteve champon	2005 (3)	Taylor and francis elibrary


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SEMESTER-III

Programme: PG	Subject: M.Sc., Computer Science
Course code:19PCSC33	Course Title: Compiler Design
Category: Core	Credits:4

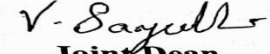
- Objectives:**
1. To introduce the major concept areas of language translation and compiler designer.
 2. To develop an awareness of the function and complexity of compilers.

nit	Detailed Syllabus	Outcomes	Hours
1	Introduction to Compiler: Language Processors- The Structure of a Compiler – The Evolution of Programming Languages – The Science of Building a Compiler – Application of Compiler Technology – Programming Language Basics. A Simple Syntax- Directed Translator: Syntax Definition – Syntax - Directed Translation – Parsing –A Translator of Simple Expression – Lexical Analysis – Symbol Table – Intermediate Code Generation.	The Student can 1.understand the Structure of a compiler 2.describe the design of a compiler including its phases and components 3.describe the role of the compiler in ensuring the security, privacy and integrity of data	12
2	Lexical Analysis: The Role of the Lexical Analyzer - Input Buffering – Specification of Tokens - Recognition of Tokens – The Lexical- Analyzer Generator Lex – Finite Automata – From Regular Expression to Automata – Design of a Lexical-Analyzer Generator – Optimization of DFA- Based Pattern Matchers.	The Students can 1. identify tokens of a typical high-level programming language 2. define regular expressions for tokens and design 3. implement a lexical analyzer using a typical scanner generator.	12
3	Syntax Analysis: Introduction – Context-Free Grammars – Writing a Grammar – Top-Down Parsing – Bottom-Up Parsing – Introduction to LR Parsing: Simple LR – More Powerful LR Parsers – Using Ambiguous Grammars.	The Students can 1.apply an algorithm for a top-down or a bottom-up parser construction 2.construct a parser for a small context- free grammar. 3.specify and analysis the lexical, syntactic and semantic structures of advanced language features	12
4	Intermediate-Code Generation: Variants of Syntax Trees – Three-Address Code – Types and Declarations – Translations of Expressions – Type Checking – Control Flow – Back patching – Switch Statements – Intermediate Code for Procedures. Runtime Environments: Storage Organization – Stack Allocation of Space – Access to Nonlocal Data on the Stack.	The Students can 1. explain the role of a semantic analyzer and type checking 2. create a syntax-directed definition and an annotated parse tree 3. describe the purpose of a syntax tree.	12
5	Code Generation: Issues in the Design of a Code Generator – The Target Language – Address in the Target Code – Basic Blocks and Flow Graph – Optimization of Basic Blocks – A Simple Code Generator – Peephole Optimization – Register Allocation and Assignments – Instruction Selection by Tree Rewriting - Optimal Code Generation for Expression – Dynamic Programming Code-Generation. Machine- Independent optimization: The Principal Source of Optimization.	The Students can 1. describe the purpose of translating to intermediate code in the compilation process. 2. design and implement an intermediate code generator based on given code patterns 3. understand the Principal source of Optimization.	12

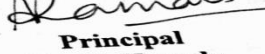
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Advanced Compiler Design	Steven S. Muchnick	2014	Publishers an imprint of Elsevier
2	Compiler construction	DMdhamdhare	(2)	1999
3	Principles of computer design	Maheswari jeybalan	2004	Charulatha publication
4	Theory and practice of compiler writing	Jeanpaul trembly paul	2005	Bs publication
5	Compilers-Principles, Techniques and Tools	Alfred V.Aho , Monica S.Lam, Ravi Sethi ,Jeffrey D.Ullman	2012 (2)	Pearson publication


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SEMESTER-III

Programme: PG	Subject: M.Sc., Computer Science
Course code: 19PCSC34	Course Title: Soft Computing
Category : Core	Credits: 4

Objectives:

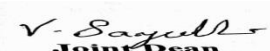
1. To understand the basic Concept of neural network, various models of Neural networks and supervised and unsupervised learning techniques
2. To get familiar with the basis of Fuzzy logic, fuzzy relations, fuzzy inference system and de-fuzzification technique.

Unit	Detailed Syllabus	Outcomes	Hours
1	Neural Networks Fundamentals: Artificial Neural Network : Basic Concepts of Neural networks - Evolution of Neural networks - Basic Models of Artificial neural network - Terminologies of ANN- McCulloch - Pitts Neuron - Linear separability - Hebb Network - Applications of Neural networks. Supervised learning Network : Introduction – Perceptron Networks – Adaptive Linear Neuron – Multiple Adaptive Linear Neurons – Back propagation Network.	The Student can 1. understand the basic concepts of neural networks. 2. identify the parameters required for ANN. 3. understand back Propagation.	12
2	Categories of Neural Networks : Associative Memory Networks : Introduction – Training algorithms for pattern association – Auto associative Memory Network – Bidirectional Associative Memory – Hopfield Networks. Unsupervised Learning Networks: Introduction – Fixed Weight Competitive Nets - Kohonen Self-Organizing Maps – Learning Vector Quantization – Adaptive Resonance Theory Network	The Student can 1. classify different types of ANN. 2. identify supervised and unsupervised learning. 3. evaluate various techniques of soft computing to defend the best working solutions.	12
3	Fuzzy Logic: Introduction – Classical Sets – Fuzzy Sets. Fuzzy Relations: Cardinality of Fuzzy Relation – Operations and properties of Fuzzy Relations – Fuzzy Composition – Non interactive fuzzy sets. Membership Functions: Introduction – Features of Membership functions – Fuzzification	The Student can 1. list the facts and outline the different process carried out in fuzzy logic, ANN and Genetic algorithms. 2. understand the fuzzy logic and the operations on them. 3. understand the fuzzy rules and membership functions from training examples	12
4	Defuzzification: Introduction – Lambda cut for Fuzzy Sets and Relations – Defuzzification Methods. Fuzzy Arithmetic and Fuzzy Measures: Introduction – Fuzzy Arithmetic – Fuzzy Measures.	The Student can 1. evaluate various techniques of soft computing to defend the best working solutions. 2. understand Induction of fuzzy rules and membership functions. 3. understand Fuzzy Regression fuzzy Clustering Fuzzy Relation equation	12
5	Genetic Algorithms : Introduction - Basic Operators and Terminologies in GAs - Traditional Algorithm vs. Genetic Algorithm - Simple GA - General Genetic algorithm - The Schema Theorem - Classification of Genetic Algorithm - Applications of Genetic Algorithm. Applications of Soft Computing : Introduction - A Fusion approach of Multispectral Images with SAR Image for Flood area Analysis - Optimization of TSP using Genetic Algorithm Approach.	The Student can 1. sequencing parallel machining operations by genetic algorithms. 2. know the genetic-based framework for solving (multi-criteria) weighted matching problems. 3. know the Genetic Algorithm approach to Solving DNA fragment assembly Problem	12

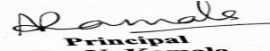
Reference books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Soft computing fundamentals and applications	Dilip K. Pratihari	2010	Narosa publishing house
2	Soft computing	K. Vinoth Kumar	2012 (1)	S.K. Katari & Sons
3	Soft computing	Sushil Kumar Singh	2012 (1)	Galgotia publications
4	Soft Computing – Fundamentals and Applications	B.K. Tripathy, J. Anuradha	2015 (1)	Cengage learning India pvt ltd


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SEMESTER-III ELECTIVE

Programme: PG	Subject: M.Sc., Computer Science
Course code: 19PCSE31	Course Title: Data Science and Data analytics
Category : Elective-1	Credits: 4

Objectives:

1. Conceptualization and summarization of Big data and machine learning, trivial data Versus Big data.
2. To select and implement machine learning techniques and computing environment that are suitable for the applications under considerations.

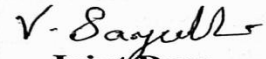
SYLLABUS

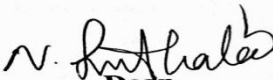
Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction of Data Science: what is data science? - Data science difference between Big data and datascience- application of data science-data science process-life cycle of data science - Machine learning in data science-handling large data in single computer-Text mining and textanalytics	The Student can 1. understand the concept of datascience. 2. know flow of a data scienceprocess. 3. gain knowledge about machinelearning.	12
2	Basic Data Analytics using R : R Graphical UserInterfaces – Data Import and Export – Attribute and Data Types – Descriptive Statistics – Exploratory Data Analysis – Visualization Before Analysis – Dirty Data – Visualizing a Single Variable – Examining Multiple Variables – Data Exploration Versus Presentation.	The Student can 1. understand the concept of attributesand datatypes. 2. know how to explore thedata. 3. get the basic idea about dataanalytics usingR.	12
3	Overview of Clustering : K-means – Use Cases – Overview of the Method – Perform a K-means Analysis using R – Classification – Decision Trees – Overview of a Decision Tree – Decision Tree Algorithms – Evaluating a Decision Tree – Decision Tree in R – Bayes’ Theorem – Naïve Bayes Classifier – Smoothing – Naïve Bayes in R.	The Student can 1.partition the data set into cluster. 2.implement the algorithm using decision tree.. 3.apply the knowledge of K-Means in business assumptions.	12
4	Artificial intelligence: Machine Learning and deep learning in data science-Data Analytics life cycle-review of data analytics - Advanced data Analytics-technology and tools- Clustering, association rules. Linearregression-logistic regression-Addition regression methods.	The Student can 1.know about Data analytics tools. 2.understand the basic concepts and definition of machine and deep learning. 3.know the methods of regression.	12
5	Algorithm -supervised algorithm and unsupervised algorithm. Data analytics tools: R tool-function-control structure. Advanced excel- Weka tool--Weka application- - orange tool Datascience.	The Student can 1. apply the R programming from astatistical perspective. 2. understand use of R for big data analytics. 3.learn the machine learning techniqueusing wekatools.	12

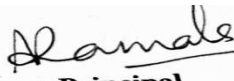
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Data science in big data analytics	Wiley	2015	John Wiley & Sons
2	A simple introduction to Data Science	Lars Nielson	2015	Wickford RI
3	Introducing Data Science	Davy Cielen, Arno D.B.Meysman, Mohmaed Ali	2016	Manning Publication
4	R Programming for Data Science	Roger D.Peng	2015	Lean Publication


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SEMESTER-III
ELECTIVE II

Programme: PG	Subject: M.Sc.,(CS)
Course code: 19PCSE32	Course Title: Artificial Neural Networks
Category : Elective-2	Credits: 4

Objective:

- To understand the basic Concept of neural network, various models of Neural networks and supervised and unsupervised learning techniques.
- Analyze functional units of Artificial Neural Network for pattern recognition.

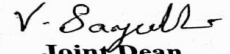
Unit	Detailed Syllabus	Outcomes	Hours
1	Basic Of Artificial Neural Networks: Characteristics of Neural Networks-Historical Development of Neural Network Principles. Artificial Neural Networks: Terminology-Models of Neuron-Topology- Basic Learning Laws Activations And Synaptic Dynamics: Introduction - Activation Dynamics Models- Synaptic Dynamics Models-Learning Methods- Stability and Convergence-Recall in Neural Networks	The Student can 1. describe the structure and function of the artificial neuralnetwork 2. identify and describe artificial neural network techniques in building intelligent machines 3.apply artificial neural network models to handle uncertainty and solve engineeringproblems.	12
2	Functional Units Of Ann For Pattern Recognition Tasks: Pattern Recognition Problem-Basic Functional Units-Pattern Recognition Tasks by the Functional Units. Feed Forward Neural Networks: Introduction- Analysis of Pattern Association Networks-	The Student can 1. quantitatively analyze the process and outcomes of learning in ANNs, and account for their shortcomings andlimitations 2. recognize the use of pattern reorganization algorithms which are more appropriate for various types of tasks in various domains 3.perform the training of neural networks using various functions	12
3	Analysis of Pattern Classification Networks: Analysis of Pattern Mapping Networks Feedback Neural Networks: Introduction: Analysis of Linear Auto Associative FF Networks-Analysis of Pattern Storage Networks-Stochastic Networks and Simulated Annealing-Boltzmann Machine	The Student can 1. reflect developed and implement methods for artificial neuralnetworks 2. confidently apply common neural network algorithms in practice and implementing their own 3. evaluate and interpret the results of the algorithms	12
4	Competitive Learning Neural Networks: Introduction: Components of a Competitive Learning Network-Analysis of Feedback Layer For Different Output Functions-Analysis of Pattern Clustering Networks-Analysis of Feature Mapping Network	The Student can 1.design and implement artificial neural networks solutions to competitive learning network 2.understand the basic ideas behind most common learning networkalgorithms 3.analyse the pattern clustering networks	12
5	Architectures For Complex Pattern Recognition Tasks: Introduction- Associative Memory-Pattern Mapping-Stability Plasticity Dilemma: ART-Temporal Patterns-Pattern Variability: Neocognitron	The Student can 1.recognize the feasibility of applying architectures for complex pattern recognition 2.demonstrate when and how deep architectures lead to increased performance in pattern recognition and data miningproblems 3.develop application on soft computing techniques	12

Reference Books:

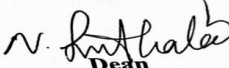
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Introduction to Neural Networks using MATLAB 6.	B.Yegnanarayana	2006	Tata McGraw Hill
2	Artificial neural Networks	S N Sivanandam, S Sumathi ,S N Deepa	2005	Prentice Hall India
3	Neural Networks Algorithms, Applications and programming Techniques,	James A Freeman David M Skapura	2003	Pearson Education
4	Neural Networks for Pattern Recognition	Christopher M. Bishop	-	Oxford University Press



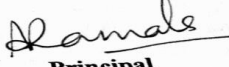
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Joint Dean
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SEMESTER-III
ELECTIVE III

Programme: PG	Subject: M.Sc., Computer Science
Course code: 19PCSE33	Course Title: Xml and Web services
Category : Elective-3	Credits: 4

Unit	Detailed Syllabus	Outcomes	Hours
1	XML in context : XML: A Brief glimpse-The beginning of XML- The promise of XML- what is XML heading? The fundamentals of XML : Introduction to XML syntax- XML document structure- XML content models- Rules of XML structure –well formed and valid documents- Namespaces in XML- Applying styles in XML- Basics of reading and processing XML. Validating XML with the Document Type Definition(DTD) : Document Type Definition- some simple DTD examples- structure of Document type definition.	The Students can 1. able to understand the components of XML systems. 2. analyze the importance and rules of XML structure and its processing. 3. gain knowledge about document type definition and its structure.	12
2	Creating XML schemas : Introduction to the W3c XML schema recommendation - creating XML schema –summary. The x-files: Xpath- Xpointer and Xlink: Xpath- Xpointer- Xlink. Defining XML using alternate schema representation : A brief review of XML schema- Data formats-XDR,DSD and DCD- Schema for object oriented XML-relaxing schema- schematron.	The Students can 1. understand the creation of XML schema. 2. develop various files using XML paths, files and pointers. 3. identify the basic components of schema and schematron.	12
3	Parsing XML using document object model : What is DOM, anyway?- DOM levels- disadvantages of DOM- DOM core- DOM traversal and range- other DOM implementations- java architecture for XML binding. Parsing XML using SAX : What is SAX- DOM Vs SAX- SAX basics-working with SAX.	The Students can 1. understand various DOM implementations. 2. learn architecture for the XML binding. 3. develop the understanding and working of SAX basics	12
4	SOAP : what is SOAP? Why it is important?- The road of SOAP- HTTP-XML and RPC-SOAP- message paths-SOAP attachments- SOAP and firewalls.	The Students can 1. understand the importance of SOAP. 2. Understand the analysis of HTTP, RPC. 3. identify and describe the message paths and firewalls of SOAP.	12
5	Web services : what is web services?- web service technologies-UDDI- WSDL- ebXML- ebXML technologies. XML security: security overview-why is XML special? – XML encryption- XML digital signature-XKMS structure- guidelines for signing XML documents.	The Students can 1. understand the web services. . 2. analyse about the web service technologies 3. understand the XML security and structure.	12

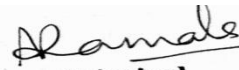
Reference Books:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Multimedia System Design	Prabhat k. Andleigh, Kiran Thakrar	-	Pearson Education
2.	Multimedia Communications	Fred Halsall	-	Pearson Education
3.	Principles of Multimedia Database System	V.S. Subrahmanian	1998	-
4.	Introduction to Algorithms	Thomas H. Corman, Charles E. Lieserson, Ronald L. Rivest	2003 (2)	-
5.	Fundamentals of Data Structure	Ellis Horowitz, Sartaj Sahni	2001 (2).	Galgotia publications


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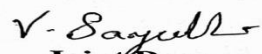
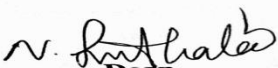
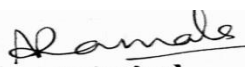
SEMESTER-III

Program me: PG	Subject: M.Sc., Computer Science
Course code: 19PCSCL31	Course Title: MATLAB
Category : Core	Credits: 2

MATLAB- LIST OF PRACTICAL

Programs Should Include But Not Limited To

1. Read and display digitalImages.
2. Image ArithmeticOperations
3. Image Logical Operations
4. Geometric transformation of Image
5. HistogramEqualization.
6. Non-linear Filtering.
7. Edge detection usingOperators.
8. 2-D DFT and DCT.
9. Filtering in frequencydomain.
10. Conversion between colorspace.
11. DWT ofimages.
12. Segmentation.

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SEMESTER-III

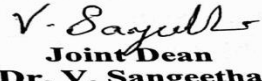
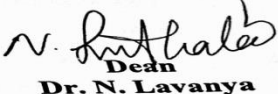
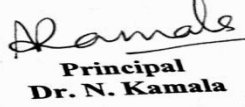
Program me: PG	Subject: M.Sc., Computer Science
Course code: 19PCSPWV1	Course Title: Project 1
Category : Core	Credits: 6

MINI PROJECT

It is mandatory that the student should submit a report based on the software (Mini Project) developed on any one of the below mentioned topics:

1. Android Applications
2. Image Processing Applications
3. Web Applications Using ASP.NET with C#

The Internal Mark shall be Distributed as given below:	
Internal Assessment Components	Marks
Review Project	20
Performance	20
Report	10
Total	50
The External Mark shall be Distributed as given below:	
External Assessment Components	Marks
Project Report	20
Presentation and execution	15
Viva	15
Total	50

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SEMESTER-IV

Program me: PG	Subject: M.Sc., Computer Science
Course code: 19PCSPWV2	Course Title: Project 2
Category : Core	Credits: 16

MAJOR PROJECT

Project Guidelines

(For Certificate, Diploma, Advanced Diploma, UG, PG, and MPhil., programmes)

- Duration of the project work shall be for a period of one semester
- Project work shall be carried out under the supervision of a faculty member of the department concerned or from allied department, if the work is of interdisciplinary in nature or with internal or external expert beyond the department as co-supervisor.
- The supervisor allocation shall be made by lot by the end of 4 semester in UG, by the end of 2ndsemester in PG (April 1st week) and for MPhil., 15 days after joining the programme. The allocation details may be sent to Autonomous cell by 10th April for UG & PG and for MPhil., 30 days after joining the programme.
 - After allocation, the respective supervisors have to conduct orientation/counsel meeting with the assigned candidates about the project with P3 agenda (Participation, Presentation, and Publication) towards career prosperity. Subject Knowledge towards Pure and Applied part may be highlighted for doing the project.
 - The HoD shall review the coverage of different fields of the subject amongst the candidates and to see that the students should not focus on particular fields alone.
- The candidates have to study/refer journals/previous works/focus on the proposed topic in the summer vacation and 5-10 titles of proposed project on respective subject (discipline) or on allied subject (interdisciplinary) with economic/scientific/social/local/state/national/global issues may be submitted to the guide by May end.
- The supervisor shall guide the candidates on their choice after having reviewed proposed topics, the mindset and work culture, provided the work is of innovative in nature, affordable and with future prospective. If not satisfied with the proposed topic/due to lack of infrastructure/beyond scope and practicality, supervisor herself shall suggest the field/topic for work. Hard copy of proposed title with objectives in the prescribed format to be submitted to CoE’s Office through Dean, Autonomous in the last week of June
- Parent’s undertaking/willingness may be obtained in writing by inviting the parents for department level meeting after explaining its importance, guidelines, safety precautions related to outdoor project commitments etc.
- Project period – June to September. Last date for the submission of dissertation is 15th October
- Project Progress Review has to be conducted in 5th July, 5th August and 5th September.Report Card for individual candidates shall be maintained at the department for audit at any time. (Proforma)
- If a candidate fails to submit the dissertation on or before the specified date, she may submit the same on or before 15th November by paying prescribed late fee.
- The evaluation of dissertation will be as per the University/Autonomous norms.

The assessment of Project component during the Course and in the End-semester examinations shall be carried out as follows:

CIA (Max: 25 Marks)				End – Semester Examination (Max.: 75 marks)				
Marks for Reviews (Average of the best two of the three compulsory Reviews) (Max.: 25 marks)				Marks for Thesis Evaluation (Max.: 25 marks)		Marks for Viva-Voce Exam. (wit the Deptl. Faculty Member / Course students) (Max.: 50 marks)		Total (Max.)
Review I (Max.)	Review II (Max.)	Review III (Max.)	Average of the best two (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	
25	25	25	25*	12.5	12.5	25	25	75*

- * The marks secured may be rounded off to its nearest integer.
11. PG and M.Phil., students should carry out the project individually. UG students may undertake group projects with a maximum of three students in a group. The group may be of interdisciplinary nature combining students from two to three departments with the concern of the respective guides. An undertaking, in this regard, has to be submitted by the group of students with the endorsement by the guides.
 12. LATEX procedure shall be followed for Mathematics projects.
 13. **GUIDELINES ON THESIS (WITH STATIONERY ECONOMY MEASURES):**
 - a. Number of Pages (inclusive of prefix and suffix):
 - i) V semester Project Maximum 40 pages;
 - ii) VI semester Project Maximum 60 pages,
 - iii) PG Projects Maximum 80 pages;
 - iv) MPhil., maximum 100 pages.
 - b. Size of the paper A4; Font Times New Roman; Title 14 Capitals/Bold; Subtitle 12 Capitals/Bold; Running matter 11.
 - c. Left and Right margin 1 and half inch; Top and bottom margin 1 inch
 - d. Line space 1.5
 - e. Table and Figures shall be in separate sheets (without page number). More than 1 table or figure or plate is permitted in a page. Table number followed by the title should be on the top of the respective table. Similarly Figure Number followed by title be at the bottom of the respective figures. Regarding Plates ie photographs only original photographs (printed in photo sheet) of the work carried out and scientifically relevant to be included. The size the photographs should be reduced and neatly arranged in a page with appropriate title or sub title. Plate Number followed by the title be at the bottom of the photographs concerned.
 - f. Number of copies:
 - i. Copy 1 – Student copy – Neatly typed on one side with good binding to be submitted (to be returned immediately after examination)
 - ii. Copy 2 – Department copy - Neatly typed on both sides of the paper with stapler pin binding –Copies of all students have to be bound in volumes of 1 or 2 and kept in the department for reference.
 - iii. Copy 3 - Autonomous Office copy – Projects of all students as one CD/DVD & Hard copy of the abstract/extended abstract as OHP bound booklet.
 - iv. For PG & MPhil., (Candidate copy - Hard bound (one side print), Autonomy (CD), Guide copy (CD), Department (CD containing all projects of the class), Central library (CD containing all projects of the class) & Hard copy of the abstract/extended abstract as OHP bound booklet.
 - g. Uniform structure/composition of the thesis:

Uniformity in Prefix contents for all disciplines			
1	Wrapper page		
2	Wrapper page copy		
3	Contents		
4	Acknowledgement by the candidate		
5	Declaration by the Candidate with candidate’s Photo attested by HoD		
6	Certificate by the supervisor, countersigned by HoD		
7	Evaluation Examiners Page		
Running matter structure Arts, Languages, Humanities		Running matter structure Science	
1	Abstract/Extended Abstract	1	Abstract/Extended Abstract
2	Introduction	2	Introduction
3	Review of Literature	3	Review of Literature
4	Profile of The Study	4	Materials
5	Methodology & Data collection	5	Methodology
6	Analysis and Interpretation	6	Results
7	Findings, Suggestions and Conclusion	7	Discussion
8	Bibliography(Uniform format)	8	Bibliography (Uniform format)

Uniformity in Suffix – contents
Publications – Xerox of Abstracts/extended abstracts/Full papers

h.

Bibliography: Arts & Science.

i.

Research article:

Latha, P., Dhanabackialakshmi, R., Kumar, P.S. and Karuthapandian, S. 2016. Synergistic effects of trouble free and 100% recoverable CeO₂/Nylon nanocomposite thin film for the photocatalytic degradation of organic contaminants. Separation and Purification Technology, 168(2): 124-133

ii.

Conference / Seminar / Symposium papers

Peng, J., Zhang, X., Lei, Z., Zhang, B., Zhang, W. and Li,Q. 2009. Comparison of several cloud computing platforms. In: Proceedings of Second International Symposium on Information Science and Engineering, 23 – 27

iii.

Books

Versteeg, H.K. and Malalasekera, W. 2007.An Introduction to Computational Fluid Dynamics. II Edn. Pearson Education Ltd., New York, pp. 517

iv.

Book Chapters

Wade, S.E. 1981. Statistical designs for survey research. In: Stempel, G.H. and Westley, B.H. (Eds.). Research methods in mass communication.Printice Hall India Learning India Ltd., New Delhi, pp. 167

v.

Web reference

National Institute of Mental Health.2018, July.Anxiety disorders. U.S. Department of Health and Human Services, National Institutes of Health. <https://www.nimh.nih.gov/health/ topics/anxiety-disorders/index.shtml>

(Author to be included first, date to be included before month, if available)

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A branch of Sri Ramakrishna Tapovanam, Tirupparaithurai Affiliated to Manonmaniam Sundaranar University, Tirunelveli

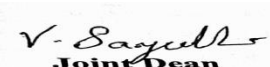
Degree: M.Phil, Subject: Computer Science Programme structure (wef 2019-2020)

Sem	Category	Course code	Course title	Hours/week			Credits	Page No.
				L	P	T		
I	Core	19MCSC11	Research and Teaching Methodology	4		4	4	100
I	Core	19MCSC12	Recent Research Trends in Computing	4		4	4	101
I	Elective	19MCSE11	Internet of Things (IoT)	4		4	4	102
		19MCSE12	Advanced Digital Image Processing					
		19MCSE13	Data Mining and Warehousing					
		19MCSE14	Machine Learning Techniques					
		19MCSE15	Cloud Computing					
II	Thesis		Dissertation		12	12		



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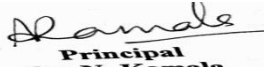
Joint Dean

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Dean

Dr. N. Lavanya



Principal

Dr. N. Kamala

SEMESTER I

Programme: M.Phil	Subject: Computer Science
Course code: 19MCSC11	Course Title: Research And Teaching Methodology
Category: Core	Credits: 4

Objectives

1.

To understand a general definition of research design.
2.

To identify the overall process of designing a research study from its inception to its report.
3.

To know the primary characteristics of quantitative research and qualitative research. Outcomes
1.

Explain the importance of the research methodology
2.

Select and apply different research approaches and methodologies
3.

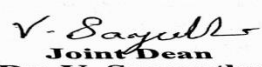
Develop data collection instrument according to the underlying theoretical framework. Analyse quantitative data and qualitative data using software packages

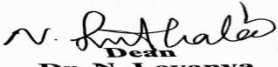
Units	Detailed Syllabus	Hours
1	Research Methodology: introduction -Meaning of Research -objectives of Research –Motivation in Research –Types of Research–Research Approaches –Significance of Research –Research methods versus methodology.	12
2	Research and Scientific Method–Importance of knowing how Research is done–Research process–Criteria for good Research–Problems encountered by Researchers in India. Journal Reading Techniques –Defining the Research problem –What is the Research Problem –Selecting the Problem –Necessity of Defining the problem –Technique involved in Defining the Problem –An illustration – Conclusion. Research Design–Need for Research Design–Features of good design–Important concepts relating to Research Design –Different Research Design –Basic principles of Experimental.	12
3	Methods of Data Collection –Collection of primary data –Collection of data through questionnaires –Schedules –Differentiation between questionnaires and schedules –Other methods of data collection – Collection of secondary data –Selection of appropriate method for data collection–Guidelines for constructing questionnaire/Schedule–Guidelines for successful Interviewing– Difference between survey and experiment –Data Collection using Journals.	12
4	Significance of Report Writing –Different steps in writing Report –Layout of the Research Report –Types of Reports–Oral presentation –Mechanics of writing a Research Report –Precautions for writing a Research Reports–Conclusions.	12
5	Pedagogical Methods in Higher Learning–Historical Perspectives–Objectives and role of Higher Education–Learning and Learning Hierarchy–Information processing–Learning Events and Outcomes –Motivation. Education Evaluation: A Conceptual Framework –Methods of Evaluation –Self Evaluation and Student Evaluation in Higher Education –Question Banking –Diagnostic Testing and Remedial Teaching.	12

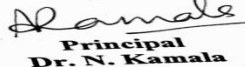
Reference Books

S.No	Title of the Book	Author	Edition, Year	Publication
1.	Research Methodology–Methods and Techniques	C.R. Kothari	Second Edition 2003	New Age International (P) Limited, New Delhi
2.	Qualitative Research in IS: Issues & Trends	Eileen M. Trauth	ISBN: 1930708-06-08 2001	IDEA Group Publishing, New Delhi
3.	Introducing Research Methodology: A Beginner's Guide to Doing a Research Project	Uwe Flick	Second Edition 2015	SAGE Publications Ltd, New Delhi
4.	Research Design: Qualitative, Quantitative and Mixed Methods Approaches	John W. Creswell	Fourth Edition	SAGE Publications Ltd, New Delhi
5.	The Essential Guide to Doing Your Research Project	Zina O'Leary	Second Edition, 2009	SAGE Publications Ltd, New Delhi


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SEMESTER I

Programme: M.Phil	Subject: Computer Science
Course code: 19MCSC12	Course Title: Recent Research Topics In Computing
Category: Core	Credits: 4

Objectives

- 1. To provides a basic exposition to the goals and methods of ArtificialIntelligence.
- 2. To understand the fundamental ofRobotics.
- 3. To know the best understanding of networksecurity.
- 4. To get basic ideas in the recent researchfield.

Outcomes

- 1. Provides a basic exposition to the goals and methods of Soft Computing and CloudComputing
- 2. Explains a brief knowledge about mobile computing
- 3. Explain principles of NetworkSecurity

Units	Detailed Syllabus	Hours
1	Robotics and Artificial Intelligence: AI problem – AI technique – level of the model – defining the problem – production systems – production system characteristics – Heuristic search techniques. Robot anatomy-Definition, law of robotics, History and Terminology of Robotics-Accuracy and repeatability of Robotics-Simple problems Specifications of Robot-Speed of Robot-Robot joints and links-Robot classifications-Architecture of robotic systems-Robot Drive systems Hydraulic, Pneumatic and Electric system.	12
2	IntroductiontoDataMining:Functionalities–ClassificationofDataMiningSystems–DataWarehouse and OLAP Technology for Data Mining – Data models – Warehousing Architecture, Implementation – DataCubeTechnologyUnit–IIDataProcessing:Cleaning:IntegrationandTransformation–Reduction – Discretization and Concept Hierarchy Generation – Data Mining Primitives, Languages and System Architectures – Query Language.	12
3	Mobile and pervasive computing: Mobile computing environment—functions-architecture -content architecture -CC/PP exchange protocol, context manager. Mobility QOS. Security in mobile computing. Pervasive Computing- Principles, Characteristics- interaction transparency, context aware, automated experience capture. Architecture for pervasive computing- Pervasive devices embedded controls.- smart sensors and actuators -Context communication and access services.	12
4	BigDataAnalyticsandManagement:IntroductiontoBigData:Definition –Characteristics–Importance of Big Data – Understanding the waves of managing data – Architecture of Big Data. Analytics and Big Data: Using Big Data to get results – Basic Analytics – Advance Analytics – Operationalized Analytic – Modifying Business Intelligence products to handle Big Data. AnalyticalAlgorithms.	12
5	Network Security: Cryptography - Introduction -Submission Ciphers – Transposition Ciphers - Onetime pads – Cryptographic Principles – Symmetric Key Algorithms: DES - AES – Cipher Modes - Cryptanalysis –Public Key Algorithms – Digital Signatures: Symmetric Key Signatures – Public Key Signatures-MessageDigests-TheBirthDayAttack–Managementofpublic keys:Certificates–X509 - Public Key Infrastructure.	12

Reference Books

S.No	Title of the Book	Author	Edition, Year	Publication
1	Robotics Technology and flexible automation	S.R. Deb	First Edition 2009	Robotics Technology and flexible automation, New Delhi
2	Artificial Intelligence	Elaine Rich and Kevin Knight	Second Edition 1995	Tata Mc-Graw Hill publications, New Delhi
3	Data Mining: Concepts and Techniques	Jiawei Han and MichelineKamber	First Edition 2001	Morgan Kaufman Publishers, New Delhi
4	Context-Aware Computing Pervasive	SengLoke	First Edition 2007	Auerbach Pub.,New Delhi
5.	Pervasive Computing	UweHansmannet	First Edition 2001	Springer, New Delhi


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EMESTER I

Programme: M.Phil	Subject: Computer Science
Course code: 19MCSE11	Course Title: Internet of Things
Category: Elective	Credits:4

Objectives

- 1. To understand the fundamentals of Internet of Things
- 2. To learn about the basics of IOT protocols
- 3. To build a small low cost embedded system

Outcomes

- 1. Explains the basic components of IOT.
- 2. Able to develop web services to access/control IoT devices.
- 3. Design a portable IoT using Raspberry Pi
- 4. Deploy an IoT application and connect to the cloud.
- 5. Analyze applications of IoT in real time scenario

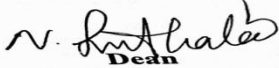
Units	Detailed Syllabus	Hours
1	OVERVIEW-IoT-An Architectural Overview– Building an architecture, Main design principles and needed capabilities, An IoT Architecture outline, standards considerations. M2M and IoT Technology Fundamentals- Devices and gateways, Local and wide area networking, Data management, Business processes in IoT, Everything as a Service (XaaS), M2M and IoT Analytics, Knowledge Management	12
2	REFERENCE ARCHITECTURE IoT Architecture-State of the Art– Introduction, State of the art, Reference Model and architecture, IoT reference Model – IoT. Reference Architecture- Introduction, Functional View, Information View, Deployment and Operational View, Other Relevant architectural views. Real-World Design Constraints- Introduction, Technical Design constraints- hardware is popular again, Data representation and visualization, Interaction and remote control.	12
3	IOT DATA LINK LAYER & NETWORK LAYER PROTOCOLS (12 hours) PHY/MAC Layer (3GPP MTC, IEEE 802.11, IEEE 802.15), Wireless HART, Z-Wave, Bluetooth Low Energy, Zigbee Smart Energy, DASH7- Network Layer- IPv4, IPv6, 6LoWPAN, 6TiSCH, ND, DHCP, ICMP, RPL, CORPL, CARP	12
4	UNIT IV – TRANSPORT & SESSION LAYER PROTOCOLS - Transport Layer (TCP, MPTCP, UDP, DCCP, SCTP)- (TLS, DTLS) – Session Layer- HTTP, CoAP, XMPP, AMQP, MQTT. SERVICE LAYER PROTOCOLS & SECURITY - Service Layer - one M2M, ETSI M2M, OMA, BBF– Security in IoT Protocols – MAC 802.15.4, 6LoWPAN, RPL, Application Layer	12
5	UNIT V – CASE STUDIES- Real world design constraints- Applications- Asset management, Industrial automation, smart grid, Commercial building automation, Smart cities - participatory sensing- Data Analytics for IoT– Software & Management Tools for IoT Cloud Storage Models & Communication APIs - Cloud for IoT - Amazon Web Services for IoT.	12

Reference Books

S. No.	Title of the Book	Author	Edition, Year	Publication
1	Introduction to a New Age of Intelligence	Jan Holler, Vlasios Tsatsis, Mulligan, Stefan Avesand	First Edition, 2014.	Academic Press, West Bengal
2.	Internet of Things (A Hands-on Approach)	Vijay Madisetti and Arshdeep Bahga	First Edition, 2014.	VPT, Visakapatnam
3.	Internet of Things – A hands-on approach	Arshdeep Bahga, Vijay Madisetti	First Edition 2015	Universities Press, Hyderabad
4.	Architecting the Internet of Things	Dieter Uckelmann, Mark Harrison	First Edition 2011.	Springer, New Delhi
5.	Building the Internet of Things with IPv6 and MIPv6: The Evolving World of M2M Communication	Daniel Minoli	ISBN: 978-1-118-47347-4	Wiley Publications, New Delhi


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SEMESTER I

Programme: M.Phil.	Subject : ComputerScience
Course code: 19MCSE12	Course Title: Advanced Digital Image Processing
Category: Elective	Credits: 4

Objectives

1.
- To apply techniques for image segmentation, filtering andcompression.
2.
- Able to process and analyze imagedata.
3.
- Able to implement a complete image-processing package using standard concepts.

Outcomes

1.
- Able to apply image processing techniques in both the spatial and frequencydomains.
2.
- Design image analysis techniques in the form of image segmentation and to evaluatethe methodologies forsegmentation.
3.
- Familiarization of MATLAB Tool for Image ProcessingTechniques.

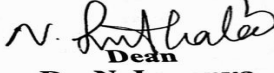
Units	Detailed Syllabus	Hours
1	Spatial Domain Processing : Introduction to image processing – imaging modalities – image file formats – image sensing and acquisition – image sampling and quantization – noise models – spatialfilteringoperations–histograms–smoothingfilters–sharpeningfilters–fuzzytechniques for spatial filtering – spatial filters for noiseremoval.	12
2	Frequency Domain Processing : Frequency domain – Review of Fourier Transform (FT), Discrete Fourier Transform (DFT), and Fast Fourier Transform (FFT) – filtering in frequency domain – image smoothing – image sharpening – selective filtering – frequency domain noise filters – wavelets – Haar Transform – multiresolution expansions – wavelet transforms – wavelets based image processing.	12
3	Segmentation and Edge Detection : Thresholding techniques – region growing methods – region splitting and merging – adaptive thresholding – threshold selection – global valley – histogram concavity – edge detection – template matching – gradient operators – circular operators – differential edge operators – hysteresis thresholding – Canny operator – Laplacian operator – active contours – object segmentation	12
4	InterestPoints,MorphologyandTexture:Cornerandinterestpointdetection–templatematching – secondorderderivatives–medianfilterbaseddetection–Harrisinterestpointoperator–corner orientation – local invariant feature detectors and descriptors –morphology – dilation and erosion – morphological operators – grayscale morphology – noise and morphology – texture – texture analysis – co-occurrence matrices – Laws' texture energy approach – Ade's eigen filterapproach	12
5	Color Images and Image Compression : Color models – pseudo colors – full-color image processing – color transformations – smoothing and sharpening of color images – image segmentationbasedoncolor–noiseincolorimages.ImageCompression–redundancyinimages – coding redundancy – irrelevant information in images – image compression models – basic compression methods – digital image watermarking.	12

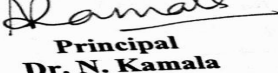
Reference Books

S.No	Title of the Book	Author	Edition, Year	Publication
1	Computer & Machine Vision	E. R. Davies	Fourth Edition 2012	Academic Press , West Bengal
2	Digital Image Processing: An Algorithmic Introduction using Java	W. Burger and M. Burge	First Edition 2008	Springer, New Delhi
3	The Image Processing Handbook	John C. Russ	Sixth Edition 2011.	CRC Press, New Delhi
4	Digital Image Processing	R. C. Gonzalez and R. E. Woods	Third Edition 2008	Pearson, Bangalore
5	Mastering OpenCV with Practical Computer Vision Projects	D. L. Baggio et al	First Edition 2012	Packt Publishing, Mumbai


HOD
Dr. V. Vallinayagi


Joint Dean
Dr. V. Sangeetha


Dean
Dr. N. Lavanya


Principal
Dr. N. Kamala

SEMESTER I

Programme: M.Phil.	Subject : ComputerScience
Course Code: 19MCSE13	Course Title: Data Mining And Warehousing
Category: Elective	Credits: 4

Objectives

1.

To understand data warehouse concepts, architecture, business analysis andtools
2.

To understand data pre-processing and data visualization techniques
3.

To study algorithms for finding hidden and interesting patterns indata Outcomes
1.

Interpret the contribution of data warehousing and data mining to the decision-support level of organizations
2.

Evaluate different models used for OLAP and datapre-processing
3.

Categorize and carefully differentiate between situations for applying different data-mining techniques: frequent pattern mining, association, correlation, classification, prediction, and cluster and outlieranalysis

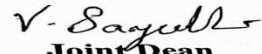
Units	Detailed Syllabus	Hours
1	Basicdataminingtasks–dataminingversusknowledgediscoveryindatabases–dataminingissues – data mining metrics – social implications of data mining – data mining from a database perspective. Data mining techniques: Introduction – a statistical perspective on data mining – similarity measures – decision trees – neural networks – genetic algorithms.	12
2	Classification: Introduction – Statistical – based algorithms - distance – basedalgorithms – decisiointree-basedalgorithms- ClassificationbyBackPropagation–SupportVectorMachines – Lazy Learners -neural network – based algorithms– rule - based algorithms– combining techniques.	12
3	Clustering: Introduction – Similarity and Distance Measures –Outliers– Hierarchical Algorithms - Partitional Algorithms. Association rules: Introduction - large item sets - basic algorithms – parallel & distributed algorithms – comparing approaches- incremental rules – advanced association rules techniques – measuring the quality of rules.	12
4	Datawarehousing:Anintroduction-characteristicsofadatawarehouse–datamart–otheraspects ofdatamart.Onlineanalyticalprocessing:introduction-OLTP&OLAPsystems–datamodelling –star schema for multidimensional view –data modelling – multifact star schema or snow flake schema – OLAP TOOLS – State of the market – OLAP TOOLS and the internet	12
5	Developing a data WAREHOUSE: why and how to build a data warehouse –data warehouse architectural strategies and organization issues - design consideration – data content – metadata distribution of data – tools for data warehousing – performance considerations – crucial decisions in designing a data warehouse.	12

Reference Books

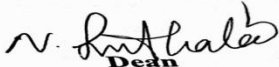
S. No	Title of the Book	Author	Edition, Year	Publication
1	Data mining introductory and advanced topics	Margaret H.Dunham	First Edition,2003	Pearson education ,NewDelhi
2	Data warehousing concepts,techniques, products and an applications	C.S.R. Prabhu	Third Edition,2010	PHI Publications, New Delhi
3	Techniques	ArunK.Pujari	First Edition,2003	Universities Press (India) Pvt. Ltd, Hyderabad.
4	Data warehousing, data mining & OLAP	Alex Berson, Stephen J. Smith	First Edition,2001	TMCH, New Delhi
5	Data mining Concepts & Techniques	Jiawei Han &MichelineKamber	First Edition,2001	Academic press, West Bengal



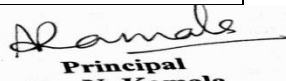
HOD
Dr. V. Vallinayagi



Joint Dean
Dr. V. Sangeetha



Dean
Dr. N. Lavanya



Principal
Dr. N. Kamala

SEMESTER I

Programme: : M.Phil	Subject: Computer Science
Course code: 19MCSE14	Course Title: Machine Learning
Category: Elective	Credits: 4

Objectives

1.
- To understand the concepts of machinelearning
2.
- To understand the clustering techniques and their utilization in machinelearning
3.
- To study the neural network systems for machine learning

Outcomes

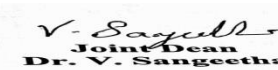
1.
- Describe the various machine learning concepts andmodels
2.
- Familiarization of Neural NetworksApplications
3.
- Able to compare and analyze the performance of various machine learningalgorithms

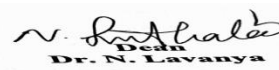
Units	Detailed Syllabus	Hours
1	Introduction: Machine learning-What and why? - Types of Machine Learning - Supervised Learning- Unsupervised Learning–reinforcement-TheCurseofdimensionality-Overfitting and linear regression - Bias and Variance - Learning Curve - Classification - Error andnoise - Parametric vs. non-parametric models - Linear model.	12
2	Clustering Approaches: Measuring (dis)similarity - Evaluating the output of clustering method - Spectralclustering -GraphLaplacian-NormalizedgraphLaplacian-Hierarchicalclustering - Agglomerative clustering - Divisive clustering - Choosing the number of clusters -Bayesian hierarchical clustering - Clustering datapoints and features - Bi-clustering - Multi-view clustering - K-Means clustering - K-meloidsclustering.	12
3	Neural Networks : Biological motivation for Neural Network - Neural network Representation - Perceptrons-Feedforwardnetworks-MultilayerNetworksandBackPropagationAlgorithms - Convergence and local minima and Hidden layer representation in back propagation - Recurrentnetworks- Applicationsofneuralnetworks-Facerecognitionusingneuralnetworks.	12
4	Linear Models : Linear Regression - Logistic Regression - Maximum Likelihood estimation (least squares) - Robust linear regression - Ridge Regression - Principal Component Analysis - Bayesian Classifier - Support Vector Machines.	12
5	Tree Learning and Reinforcement Learning : Directed and Undirected trees - Decision tree representation - Basic decision tree learning algorithm - Passive reinforcement learning – temporal-difference learning –active reinforcement learning – applications in game playing – applications in robot control.	12

Reference Books:

S.No.	Title of the Book	Author	Edition, Year	Publication
1	Elements of Statistical Learning	Hastie, Tibshirani, Friedman	Second Edition,2009	Springer, New Delhi
2	Machine Learning –An Algorithmic Perspective	Stephen Marsland	Second Edition,2009	CRC Press, New Delhi
3	Christopher Bishop	Pattern Recognition and Machine Learning	First Edition,2006	Springer, New Delhi
4	Richard Duda , Peter Hart , David Stork	Pattern Classification	Second Edition,2007	Wiley, New Delhi
5	Russell	Artificial Intelligence A Modern Approach	Third Edition,2015	Pearson, Bangalore


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Programme:M.Phil	Subject: Computer Science
Course code: 19MCSE15	Course Title:Cloud Computing
Category: Elective	Credits: 4

Objectives

1. To understand the basic concepts of Cloud computing, the infrastructure and the securityaspects.
2. To impart knowledge on the concepts of cloud computing, monitoring, management and applications ofclouds.
3. To understand the basic concepts, tasks, methods and techniques in cloudcomputing. Outcomes
1. Understanding the key dimensions of the challenges of cloud computing
2. Assessment of the economics, financial and technological implications for selecting cloud computing for ownorganizations
3. Assessment of own organizations needs for capacity building and training in cloud computing relatedIT areas.

Units	Detailed Syllabus	Hours
1	Introduction to Cloud Computing: Roots of Cloud Computing - Layers and Types of Cloud – Features of a cloud-Infrastructure Management-Cloud Services-Challenges and Risks. Migrating into a Cloud: Introduction - Broad Approaches – Seven Step Model. Integration as a Service - Integration Methodologies - SaaS.	12
2	Infrastructure as a Service: Virtual Machines-Layered Architecture-Life Cycle-VM Provisioning Process- Provisioning and Migration Services. Management of Virtual Machines Infrastructure - Scheduling Techniques. Cluster as a service-RVWS Design- Logical Design. Cloud Storage - Data Security in cloud Storage- Technologies.Cloud Infrastructure - FOSS Cloud Software Environments - Eucalyptus, Open nebula, OpenStack – OpenStack Architecture – Compute, Object Storage, Image Service, Identity, Dashboard, Networking, Block Storage, Metering, Basic Cloud Orchestration and Service Definition.	12
3	Platform and Software as a Service: Integration of Public and Private Cloud- Techniques and tools- framework architecture resource provisioning services - Hybrid Cloud. Cloud based solutions for business Applications- Dynamic ICT services- Importance of quality and Security in clouds-Dynamic Data center-case studies. Workflow Engine in the cloud – Architecture - Utilization. Scientific Applications for cloud – Issues – Classification – SAGA – Map Reduce Implementation.	12
4	Monitoring and Management: An Architecture for federated Cloud Computing – Use case–Principles –Model-SecurityConsiderations.SLAMmanagement-TraditionalApproachestoSLO-TypesofSLA - Lifecycle of SLA - Automated Policy. Performance Prediction of HPC-Grid and Cloud - HPC Performance related issues.	12
5	Applications: Best Practices in Architecting cloud applications in the AWS cloud - Massively multiplayeronlineGamehostingoncloudResources-BuildingcontentdeliveryNetworksusingclouds Resource cloud Mashups. Security in the Cloud: Cloud Security Challenges – Software-as-a-Service Security–SecurityGovernance–RiskManagement– SecurityMonitoring–SecurityArchitecture Design – Data Security – Application Security – Virtual Machine Security – Qubes – Desktop security through Virtualization Book	12

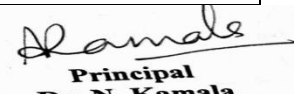
Reference Books

S.No	Title of the Book	Author	Edition, Year	Publication
1.	CLOUD COMPUTING Principles and Paradigms	RajkumarBuyya, James Broberg	First Edition 2011	John Wiley & Sons, New Delhi
2	Cloud Application Architectures	George Reese	First Edition 2009	O'Reilly Media, Inc, Kolkatta
3	Distributed and Cloud Computing, From Parallel Processing to the Internet of	Michael Miller	First Edition 2009.	QUE Publishing, Bangalore
4	Distributed and Cloud Computing, From Parallel Processing to the Internet of	Kai Hwang, Geoffrey C Fox, Jack G Dongarra	First Edition 2012	Morgan Kaufmann Publishers, New Delhi
5	Cloud Computing: Implementation, Management, and Security	John W.Rittinghouse and James F.Ransome	First Edition 2010	CRC Press, New Delhi


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SRI SARADA COLLEGE FOR WOMEN

(An Autonomous Institution)

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)
Institution recognised u/s 2(f) and 12(B) of UGC & Reaccredited with “A” grade by NAAC
(A branch of Sri Ramakrishna Tapovanam, Tirupparaithurai)
Ariyakulam, Thoothukudi NH, Maharaja Nagar Post,
Tirunelveli- 627011

Department of Computer Science

Certificate Course in Python Programming

1. CHAIR PERSON OF THE COURSE

Dr.Smt.V.Vallinayagi,
Head & Associate Professor,
Department of Computer Science,
Sri Sarada college for women,
Tirunelveli.

2. COURSE TEACHER

S.Rajalakshmi,
Asst. Prof ,
Department of Computer Science,
Sri Sarada college for women,
Tirunelveli.

3. COURSE TITLE

Python Programming

4. OUTCOME OF THE COURSE

- ✓ To understand why python is a useful scripting language for developers
- ✓ To learn how to design and program python applications
- ✓ To learn how to use strings and lists in python programs
- ✓ To learn how to write and decision statements in python
- ✓ To learn how to write functions and pass arguments in python

5. SYLLABUS /UNITS

Unit – I

Planning the Computer Program: Concept of problem solving- Problem definition- Program design- Debugging- Documentation. Techniques of Problem Solving: Flowcharting - decision table – algorithms- Structured programming concepts- Programming methodologies viz. top-down and bottom-up programming.

Unit –II

Overview of Programming: Structure of a Python Program- Elements of Python. Introduction to Python: Python Interpreter- Using Python as calculator- Python shell- Indentation- Atoms- Identifiers and keywords- Literals- Strings- Operators(Arithmetic operator- Relational operator- Logical or Boolean operator)

Unit - III

Creating Python Programs: Input and Output Statements- Control statements (Branching- Looping- Conditional Statement- Exit function- Difference between break- continue and pass.)- Defining Functions- default arguments.

Unit – IV

Iteration and Recursion: Conditional execution- Alternative execution- Nested conditionals- Return statement- Recursion- Stack diagrams for recursive functions- Multiple assignment- while statement- for statement.

Unit -V

Strings and Lists: String as a compound data type- Length- Traversal and the for loop- String slices- String comparison- A find function- Looping and counting- List values- Accessing elements- List length- List membership- Lists and for loops- List operations- List deletion. Object Oriented Programming: Introduction to Classes- Objects and Methods.

Text/ Reference Books:
1. John V. Guttag, “Introduction to Computation and Programming Using Python”, MIT Press
2. Allen Downey, “Think Python: How to Think Like a Computer Scientist”, O’Reilly
3. Mark Lutz, “Learning Python, 5th Edition”, O’Reilly

PRACTICAL

LIST OF PROGRAMS

- 1. Create a program to convert the given temperature from Fahrenheit to Celsius
- 2. Create a program to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user.
- 3. Write a program to display the first n terms of Fibonacci series
- 4. Write a program to find the factorial of the given number
- 5. Write a program to calculate the sum of two matrices

6. ELIGIBILITY FOR ADMISSION

+2 Or Equivalent were eligible

7. DURATION OF THE COURSE

30 hours

8. COMPONENTS OF EXAMINATION

- Theory – 50 Marks
- Practical – 25 Marks
- Assignment – 5 Marks
- Quiz – 10 Marks
- Presentation – 10 Marks

9. GRADING SYSTEM AND CERTIFICATION

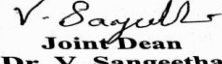
Overall Grade

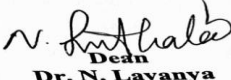
Marks	Grade
91 – 100	H
81 – 90	D+
71 – 80	D
61 – 70	A
51 – 60	B
41 – 50	C+
35 – 40	C

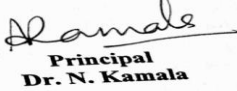
10. MODEL QUESTION PAPER

Multiple Choice Question	10 X 1 = 10
Answer the following in 250 words	5 X 4 = 20
Answer the following in 600 words	2 X 10 = 20
Total	50


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Ariyakulam, Thoothukudi NH, Maharaja Nagar Post,
Tirunelveli- 627011
Department of Computer Science
Even Semester 2019-20

Diploma course in Desktop Publishing and Animation

1. CHAIR PERSON OF THE COURSE

Dr. Smt. V. Vallinayagi,
Head & Associate Professor,
Department of Computer Science,
Sri Sarada college for women,
Tirunelveli.

2. COURSE TEACHER

M. Vijayalakshmi
Asst. Prof.,
Department of Computer Science,
Sri Sarada college for women,
Tirunelveli.

3. COURSE TITLE

Paper – I: Desktop Publishing

Paper – II: Flash

4. OBJECTIVES OF THE COURSE

The student should:

- Be familiar with the use of Office software.
- Be exposed to presentation and visualization tools.
- Be exposed to problem solving techniques and flow charts.
- Learn to use Arrays, strings, functions, structures and unions
- Learn to create animated graphics, add sound and interactivity.
- Develop the ability to design the website using flash.
- To design , create and edit a flash based navigation menus

5. SYLLABUS /UNITS

Paper – I: Desktop Publishing

Unit- I

Introduction to desktop publishing (DTP) - importance of DTP in for Publication, advantage of DTP in Publication, laser printers- used, types, advantage of laser printer in Publication.

Unit- II

Adobe pagemaker- introduction to pagemaker, attribute settings: tools, styles, minnows, alignment, grids etc., keyboard shortcuts, page layout- margins and page orientations with various page sizes, text editing and manipulation, filters, import and export options, placing of text and images, auto flow and history editor, different layouts views, table settings, columns and gutters, use of Style, palettes and colours, find option and document setup.

Unit- III

Adobe pagemaker- page and document setup, working with rulers, setting the unit measurement, bullets, column balancing, brakes, text wrapping, Windows and orphan lines, revert command and its use, using drop caps and various style format editing of graphics and frames

Unit- IV

Introduction to Adobe Photoshop, photoshop documents, and Graphic files and extensions- JPG, gif, PNG, TIF, BMP, CDR, svg etc., graphics fileS: vector image and raster images. definitions, features, area of application etc. advantage and disadvantage of vector and raster graphics, bitmap graphics, pixels, Models: Image size and resolution, changing image size and resolution, getting image from input device, creating new image in Photoshop, using file browser, opening and importing selecting image, adjusting pixel, snap command, saving and loading selection, deleting selection.

Unit -V

Photoshop- introduction PSD files. screen and work area interfaces: menu bar, option bar, palette, active image area, tools box list etc., opening a file, saving a file, closing a file, tool: icon, name and use of each tool, setting history option, Photoshop layers palettes: use of layers, why use layers, using less palette, creating layers and layers sets, background layer, working with layered image: layer and layer sets, selecting layers, displaying content of layer, duplicating layers, changing order of players, linking and aligning layers, renaming, deleting layer, colour coding, rasterizing layer, setting opacity and blending , layer effect and style, apply preset style, creating custom style, masking layer- filters.

PRACTICAL

LIST OF Programs:

PAGE MAKER:

1. Design an Identity Card or Visting Card
2. Design an attractive Invitation Card
3. Design a letter pad

PHOTOSHOP

1. Design a brochure for an institution
2. Design a seasonal greeting card
3. Transporting an image for one background to another

Paper – II: Flash

Unit – I : Introducing Flash CS5

Exploring the New and Enhanced Features of Flash CS5 – Launching the Flash Application – Creating a New Flash Document – Exploring the User Interface of Flash CS5 – The Menu Bar and the Workspace Switcher – The Stage and the Pasteboard – The Tools Panel – The PROPERTIES Panel – The LIBRARY Panel – The TIMELINE Panel – The MOTION EDITOR Panel – Working with Workspaces – Creating a New Workspace – Managing a Workspace – Setting the Stage – Saving a Flash Document – Saving a Flash Document as a Template – Opening a Flash Template – Closing a Flash Document – Exiting the Flash Application

Unit – II :Getting Started with Tools - Exploring the Different Drawing Modes in Flash – The Merge Drawing Mode – The Object Drawing Mode – Working with Drawing Tools in flash – Using Rectangle Tool – Using Oval Tool – Using Rectangle Primitive Tool – Using Oval Primitive Tool - Using Line Tool – Using Text tool – Using Pencil Tool – Using Pen Tool – Using Brush Tool – Using Paint Bucket Tool – Using Eyedropper Tool – Using Eraser Tool – Working with the Selection and Modification Tools in Flash – Using Selection Tool – Using Lasso Tool.

Unit – III :Working with Objects and Text

Editing Objects in Flash – Altering the Shape and Outline of an Object – Optimizing Curves – Expanding and Contracting Fills – Softening the Edges of an Object – Grouping and Ungrouping Objects – Transforming Objects – Distorting an Object – Scaling an Object – Rotating and Skewing an Object – Flipping an Object – Restoring a Transformed Object – Copying an Object – Deleting an Object.

Unit - IV : Working with the Timeline Panel

Working with Frames and Key frames in Flash – Inserting Frames and Key frames in the Timeline Panel – Converting a Key frame into a Frame – Copying and Pasting a Frame or Sequence of Frames – Changing the Length of a Sequence of Frames – Deleting a Frame or a Sequence of Frames – Working with Layers and Layer Folders in Flash – Creating a Layer – Locking and Unlocking a Layer – Renaming a Layer or Layer Folder – Copying and Pasting the Content of a Layer – Deleting a Layer.

Unit –V Creating Animations

Understanding Tweened Animations – Creating Frame-by-Frame Animations – Using Shape Tweening in Flash - Creating a Shape Tweening - Using shape Hits to Control Change in the Shape Tween – Working with Motion Tweening in Flash – Creating a Motion Tween – Setting the Properties of a Tweened Object by Using the Properties Panel – Adding an Additional Tween to an Existing Tweened Layer – Editing the Motion Path of a Tweened Object – Changing the Motion Path by Moving a Tweened Object – Changing the Location of a Motion Path on the Stage – Deleting a Motion Path of a Tween – Working with Motion Presets in Flash – Applying a Motion Preset – Saving a Tween as a Custom Motion Preset – Deleting a Motion Preset – – Creating a Classic Tween – Creating Classic Tween Motion along a Guided Path – Creating a Mask Layer.

6. Reference Books

1. Flash CS5 In Simple Steps,Kogent Learning Solutions Inc.,2011,DreamTech Press
2. Flash 5 ,ShammsMortier ,First Edition, 2001,IDG Books WorldWide Inc.,
3. Macromedia Flash 5 for Windows and Macintosh,Katherine Ulrich -Pearson Education
4. Macromedia Flash 8, Robert Reinhardt and SnowDowd,2006, KanakEnterprises,Indiance Books.

PRACTICAL

LIST OF Programs:

1. Create a Simple Presentation
2. End a movie clip using script
3. Start a graphic animation at a specific frame
4. Text animation using motion tweening

- 5. Activate a new window/page using buttons
- 6. Bouncing a ball with sound effect
- 7. Create a scrolling gallery in a page

6. ELIGIBILITY FOR ADMISSION

+2 Or Equivalent were eligible

7. DURATION OF THE COURSE

60 Hours

8. COMPONENTS OF EXAMINATION

Theory	- 50 Marks
Practical	– 25 Marks
Assignment	– 5 Marks
Quiz	– 10 Marks
Presentation	– 10 Marks

9. GRADING SYSTEM AND CERTIFICATION

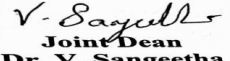
Overall Grade

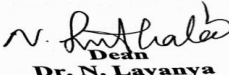
Marks	Grade
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81 – 90	D+
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35 – 40	C

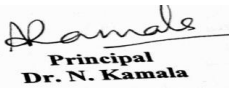
10. MODEL QUESTION PAPER

Multiple Choice Question	10 X 1 = 10
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Ariakulam, Thoothukudi NH, Maharaja Nagar Post, Tirunelveli- 627011
DEPARTMENT OF COMPUTER SCIENCE
CERTIFICATE PROGRAMME
CERTIFICATE IN E-LEARNING

1.COURSE TITLE
E-Learning

- 2.OBJECTIVES :**
- 1. Enhance the quality of learning and teaching.
 - 2. Improve the efficiency of the students
 - 3. Improve user accessibility and time flexibility.
 - 4. Create an active platform for learning.
 - 5. Create and communicate new training policies concepts and ideas.

- 3.OUTCOMES:**
- 1. Provides online learners with a clear path to success.
 - 2. Personalize the E-learning experience.
 - 3. Allows for self- paced learning
 - 4. Promotes active participation
 - 5. Gives ability to track progress and identify strength and weakness for the online learners.

4. SYLLABUS/UNITS:

UNIT	DETAILED SYLLABUS
1	E-Learning Evolution - Advantages and Disadvantages of E-Learning - Instructional design Models for E-Learning -Applying User-Centered Design to E- Learning - Methods and Measures to Retain Students Enrolled in Online Education - Choosing an Effective Communication Tool.
2	Google Drive-Google Document –Google Sheets-Google Slides-Google Forms- Google Drawings-Google My Maps-Google Sites- Google Slides-Google Apps scripts-Google Jamboard
3	Creating Animation and Effects: Animation strategies – TimeLine Animation– Character animation Techniques – fundamentals of Editing.
4	Sound: Import and Export formats – Importing sound to flash – adding sound to timeline – synchronizing audio to animations- stopping sounds – Working with sound forge.
5	Video: Integrating and Importing Video – Editing video with Adobe Premiere– Organizing & Editing clips – Adding Transition between clips – Adding special effects to video.

5.REFERENCE BOOKS:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	MacroMedia flash 8 Bible	Robert Reinhardt and Snow Dowd	2006 (1)	Wiley India (P) Ltd, New Delhi.
2.	E-Learning Concepts and Techniques	Pamela Berman	2006	Bloomsburg University of Pennsylvania, USA.
3.	Flash 8	Dinesh Maidasani	2006 (1)	Firewall Media Publications, New
4.	MultiMedia Literacy	Fred T.Hofstetter	2001	Tata McGraw Hill, New Delhi.
5.	Multimedia making it work	Tay Vaughan	2008 (7)	Tata McGraw-Hill, New Delhi.

6.ELIGIBILITY FORADMISSION

Minimum +2 (Open to all on their options)

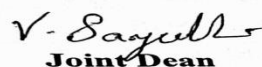
7. DURATION OF THECOURSE

35 HOURS (1 Semester)

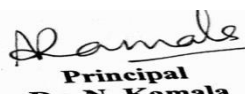
8. EXAMINATION/EVALUATION COMPONENTS

INTERNAL (40)	EXTERNAL (60)
Average of two tests = 20 marks	Section A (True/ False)= 10 X 1=10 marks
Assignment 1 = 5 marks	Section B (5 Out of 8) =5 X 4 =20 marks
Quiz 1= 5 marks	Section C (3 Out of 5)=3 X 10=30 marks
Field visit/Case Study/Record= 10 marks	


HOD
Dr. V. Vallinayagi


Joint Dean
Dr. V. Sangeetha


Dean
Dr. N. Lavanya


Principal
Dr. N. Kamala

SRI SARADA COLLEGE FOR WOMEN
(An Autonomous Institution)
(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)
Institution Recognized u/s 2(f) and 12(B) of UGC & Reaccredited with “A” grade by NAAC
(A branch of Sri Ramakrishna Tapovanam, Tirupparaithurai)
Ariakulam, Thoothukudi NH, Maharaja Nagar Post, Tirunelveli- 627011

DEPARTMENT OF COMPUTER SCIENCE

CERTIFICATE PROGRAMME

CERTIFICATE IN MOBILE APPS WITH ANDROID

1. COURSETITLE:

MOBILE APPS WITH ANDROID

2. OBJECTIVES:

1. Create applications using various UIcomponents.
2. Apply android components to createapplications.
3. Create simple applications usingAndroid
4. Understand about Native DevelopmentKit.
5. Explore knowledge about working with filesystems.

3. OUTCOMES:

At the end of the course the students must be able to

1. Understand the basics Androidtechnology
2. Learn how to create user interface usingAndroid.
3. Implement various features to create innovativeapplications.
4. Understand about Adaptors and contentproviders
5. Update knowledge to learn any future advanced version oflanguages.

4. SYLLABUS/UNITS:

UNIT	SYLLABUS
I	<i>Android overview-The Stack – Quick Start</i>
II	<i>Main building blocks – Android user interface</i>
III	<i>Preferences- The File system- The option menu and indents- The database</i>
IV	<i>List and adapters- Content providers</i>
V	<i>Android interface definition language-The Native Developement(NDK)</i>

5. REFERENCEBOOK:

S.No	Title of the Book	Author/s	Year (Edn)	Publisher
1.	Android Cookbook	-	2011(1)	O'REILLY Publications

6. ELIGIBILITY FORADMISSION

Minimum +2 (Open to all on their options)

7. DURATION OF THECOURSE

35 HOURS (1 Semester)

8. EXAMINATION/EVALUATION COMPONENTS

INTERNAL (40)	EXTERNAL (60)
Average of two tests = 20 marks Assignment 1 = 5 marks Quiz 1= 5 marks Field visit/Case Study/Record= 10 marks	Section A (True/ False)= 10 X 1=10 marks Section B (5 Out of 8) =5 X 4 =20 marks Section C (3 Out of 5)=3 X 10=30 marks

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DEPARTMENT OF COMPUTER SCIENCE

CERTIFICATE PROGRAMME

1.COURSE TITLE:

Artificial Intelligence and Expert System

2. OBJECTIVES:

1. Gain a historical perspective of AI and its foundations.
2. Become familiar with basic principles of AI toward problem solving, inference, perception, knowledge representation, and learning.
3. Investigate applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.
4. Experiment with a machine learning model for simulation and analysis.
5. Explore the current scope, potential, limitations, and implications of intelligent systems

3.OUTCOME OF THE COURSE:

1. To create appreciation and understanding of both the achievements of AI and the theory underlying those achievements.
2. To introduce the concepts of a Rational Intelligent Agent and the different types of Agents that can be designed to solve problems
3. To review the different stages of development of the AI field from human like behavior to Rational Agents.
4. To impart basic proficiency in representing difficult real life problems .
5. To implement AI techniques in Python and R Programming.

4.SYLLABUS/UNITS:

UNIT	SYLLABUS
I	Introduction to Artificial Intelligence: What is Artificial Intelligence?-Why do we need To study AI-Applications of AI-Branches of AI-Defining Intelligence using Turing Test- Making Machines Think Like Humans-Building Rational Agents-Building an Intelligent Agent.
II	Coding in R using R Studio: data types in R-vectors in R-Creating and using Data Lists-Matrices in R – Multiple Dimension using Arrays-Data Frames-using R to Perform Statistical tasks.
III	Expert system-what are Expert system-organization of expert system and tools-Stages in the development of expert system-Architecture of Expert system-Examples pitfalls in Developing expert system-expert system and tools-Application of Expert system.
IV	Machine learning –what why –types of machine learning-supervised learning-Un supervised learning –some basic concepts of Machine learning-parametric models and non parametric models-logistic regression-overfitting models selection.
V	Neural Network: Introduction to Neural Network(NN) – building a NN – training a NN – building a perceptron based classifier- single layer NN – Multilayer NN-Artificial Neural Network(ANN) – Architecture of ANN - ANN using Python and R - Convolutional Neural Network(CNN) – Architecture of CNN - CNN with Python and R.

5. TEXT BOOKS:

S.No	Title of the Book	Author	Edition, Year	Publication
1	Artificial Intelligence with Python	Prateek Joshi	First Edition, 2017	Packt Publishing
2	Machine Learning for Dummies	John Paul Mueller and Luca Massaron	First Edition, 2016	John Wiley & Sons, Inc.,

6.Reference Books:

S.No	Title of the Book	Author	Edition, Year	Publication
1	A guide to expert system	Donald A Waterman	First Edition, 2011	Wesleypress
2	Machine Learning	Kevin P.Moorthy	First Edition, 2012	MIT Press

7. ELIGIBILITY FORADMISSION

Minimum +2 (Open to all on their options)

8. DURATION OF THECOURSE

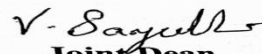
25 HOURS (1 Semester)

9. EXAMINATION/EVALUATION COMPONENTS

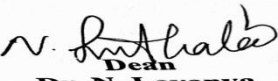
INTERNAL (40)	EXTERNAL (60)
Average of two tests = 20 marks Assignment 1 = 5 marks Quiz 1= 5 marks Field visit/Case Study/Record= 10 marks	Section A (True/ False)= 10 X 1=10 marks Section B (5 Out of 8) =5 X 4 =20 marks Section C (3 Out of 5)=3 X 10=30 marks



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Diploma course in Personal Computer Software Tools

1.COURSE TITLE

Paper –I: Advanced Microsoft Word and Spread sheet

Paper -II: Advanced Microsoft Access and PowerPoint

2. OBJECTIVES

The student should:

- Add graphics and other visual elements to enhance written communication.
- Import and export files between word and other programs in the office 2010 suits.
- Use goal seeking to determine the values required to reach a desired result.
- Solve more complex and intricate problems.
- Examine database concepts and explore the Microsoft office environment.
- Design simple database manage the data in a table.
- Insert and edit animation and slide transitions.
- Add sound and video to a slide presentation.

3. SYLLABUS/UNITS

Paper – I: Advanced Microsoft Word and Spread sheet

UNIT	DETAILED SYLLABUS
I	Customizing Paragraphs and Pages - Proofing Documents - Automating and Customizing Formatting - Customizing and Navigating in a Document - Inserting Special Features and References - Creating Specialized Tables and Indexes - Working with Shared Documents - Protecting and Preparing Document.
II	Formatting Paragraphs: Introduction – Line spacing – What are Quick styles? – More quick styles – Creating a new quick styles- Paragraph marks. Visual Content: Introduction – Character spacing – Inserting shapes – Inserting Images-Using Word Art – Using Pull Quotes – Using Textboxes – Sorting text – Using SmartArt.
III	Links, Headers and Footers: Introduction – Creating web links –Creating document location links – Creating E-mail links – Creating headers and footers. Mail Merge: Introduction – Mail merge for letters – Mail merge for envelopes – Mail merge for labels.
IV	Entering, Editing and Formatting Data: Introduction - Entering data – Fonts, fills and alignment – Cut copy and paste special – Undo and Redo. Formatting Numbers: Introduction – Currency format – Format Painter – Formatting Dates – Custom and special Formats. Understanding Formulas: Introduction – Using operations – Creating formulas – Auto sum – Common formulas – Searching for formulas – Copying formulas- Using relative and absolute reference.
V	Conditional formatting – Introduction – Highlights cells rules – top/bottom rules – Data bars – Color scales – custom formatting rules. Data Tools: Introduction – Data Validation –Drop down list –Removing duplicates – Text to columns – Goal seek – Scenario Management. Conditional Logic: Introduction – IF Statement – NESTED IF-AND-OR-NOT-IFERROR- SUMIF – AVERAGE IF- COUNTIF & COUNTIFS –SUMIFS-AVERAGEIFS.

PRACTICAL

List of Programs:

1. Working with Multiple documents (Creating index, inserting captions, working with master documents).
2. Templates forms and fields (Creating forms applying and removing password protection).
3. Import and export applications.
4. Create and manage pivot table and pivot charts.
5. Use Excel Mathematical functions.
6. Use Excel Data Functions

Paper – II: Advanced Microsoft Access and Power Point

UNIT	DETAILED SYLLABUS
I	Exploring Access Environment: Overview of Database concepts – Exploring the user interface – Opening an existing database – Customizing the access environment. Create a relational database in access: Creating a new database – Creating a table – Manage tables – Create a table relationship – Saving the table structure –Save a database as a previous version. Querying a Database: Filter records – Exploring query types – creating and running a query – Updating a data using a query – summarizing a data in a query.
II	Working with reports : The report window – exploring report types – creating a report using a report wizard – Grouping data within a report – Summarizing a data in a report – Formatting report details and printing reports. Customizing reports : Organize report information – Formatting and setting report control properties – Summarize report information–Create a mailing label report.
III	Managing data in a table: Modify table data – sort records – work with sub data sheets. Query a database: Filter records – exploring query types – creating and running a query – updating data using a query – summarizing data in a query. Joining tables : Create query joins –Join unrelated tables –relate data within table – Merge access data with a word document.
IV	Using Text : Adding text to slides – basic object manipulation – Font formatting – Paragraph formatting – applying custom bullets and numbering – using tabs – setting textbox options – checking spelling. Using Clip Art : Inserting clipart and pictures – basic graphic manipulation – Using picture tools – The format picture dialog box. Using smart Art : Inserting and manipulating smart art – formatting smart art.
V	Using Presentation Masters : Using slide masters and slide layout – using notes master– Using the hangout master – saving a presentation template. Setting up the presentation : Setting up the slideshow – recording narration – Rehearsing timings. Applying actions : Inserting actions – Inserting hyperlinks.

PRACTICAL

List of Programs:

1. Create command using filter inAccess.
2. Create Database connection in Access
3. Create Queries and Views inAccess
4. Create a Simple Presentation usinghyperlinks.
5. Insert image, tables, transitions, effects and shapes in Powerpoint.
6. Create and Edit audiotracks.

4. Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Microsoft office 2010 for dummies	PeterWeverka	First Edition	-
2.	Microsoft Excel 2010(Step by Step)	CurtisFrye	First Edition	-
3.	Microsoft Word 2010 Bible	Herb Tyson	Third Edition	-
4.	Microsoft Office 2010: introductory	GaryB.Shelly	First Edition	-

5. ELIGIBILITY FORADMISSION

Minimum +2 (Open to all on their options)

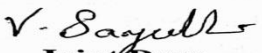
6. DURATION OF THECOURSE

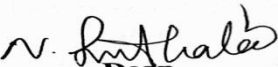
60Hours (1 Year)

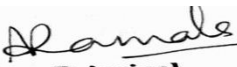
7. EXAMINATION/EVALUATION COMPONENTS

INTERNAL (40)	EXTERNAL (60)
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Department of Computer Science

Diploma course in Data Science Tools

1. COURSE TITLE

Paper –I: R programming
Paper – II: Fundamentals of Open Source Tools

2.OBJECTIVES OF THECOURSE

- The student should:
- Know how to use R for statistical programming, computation, graphics, and modeling.
 - Apply R in an innovative way
 - To learn how to handle R package
 - Update knowledge to learn any advance version of the software.
 - Understand PHP and MYSQL Integration.
 - Understand the Linux application.

3.SYLLABUS/UNITS

UNIT	DETAILED SYLLABUS
I	Getting started - Introduction to Functions - Important R Data Structures - Getting Help - vectors - Declarations - Common Vector Operations - Using all() and any() - Vectorized Operations - NA and NULL Values
II	Filtering - The Selection Function which() - The if else() Function - Vector Element Names - Matrices and Arrays - General Matrix Operations - Filtering on Matrices - Applying Functions to Matrix Rows and Columns - Adding and Deleting Matrix Rows and Columns - More on the Vector/Matrix Distinction - Higher-Dimensional Arrays - Lists - Creating Lists - General List Operations - Accessing List Components and Values - Applying Functions to Lists - Recursive Lists.
III	Data frames - Creating Data Frames - Other Matrix-Like Operations - Merging Data Frames - Applying Functions to Data Frames - Factors and Tables - Factors and Levels - Common Functions Used with Factors.
IV	Working with Tables - Other Factor- and Table-Related Functions - R Programming Structures - Control Statements - Arithmetic and Boolean Operators and Values - Default Values for Arguments - Return Values - Functions Are Objects - Environment and Scope Issues - No Pointers in R - Writing Upstairs - Recursion - Replacement Functions - Anonymous Functions.
V	Doing Math and Simulations in R - Math Functions - Functions for Statistical Distributions - Sorting - Linear Algebra Operations on Vectors and Matrices - Set Operations - Simulation Programming in R.

PRACTICAL

List of Programs:

1. To write a program that prints „Hello World“ to the screen.
2. To write a program that asks the user for a number n and prints the sum of the numbers 1 to n
3. To write a program that prints a multiplication table for numbers up to 12.
4. To write a function that returns the largest element in a list.
5. To write a function that computes the running total of a list.
6. To implement the following sorting algorithms: Selection sort, Insertion sort, Bubble Sort
7. Implement matrices addition, subtraction and Multiplication

Paper – II: Fundamentals of Open Source Tools

UNIT	DETAILED SYLLABUS
I	Introduction to Linux – what every Linux users knows - the shell - the x windows system – files and directories.
II	Viewing text – editing text – pattern matching, VI, EX and Vim editors.
III	UNIX network programming - introduction to TCP/IP: introduction – the transport layer TCP and UDP. Elementary sockets: sockets introduction, elementary TCP sockets – I/O multiplexing – socket options.

IV	Introduction to Python-Syntax and Style-Python Objects-Numbers-Sequences-Strings- Lists and Tuples-Dictionaries-Conditionals and Loops-Files-Input and Output-Errors and Exceptions-Functions-Module -Classes and OOP-Execution Environment.
V	Perl programming: Perl - introduction, Perl basics: - syntax, Variables, strings, numbers, operators, arrays: - using arrays, manipulating arrays, associative arrays, chop, length, and substring. Hashes, arguments, logic, looping, files, pattern matching, environment Variables, using cgi - lib for forms. File management Perl: - file handling, reading from files, appending files, writing to files, file checking, reading directories. Databases Perl: - DBI module, DBI connect, DBI query, MySQL module MySQL connect, MySQL, MySQLquery.

PRACTICAL

List of Programs:

1. Write a menu driven shell script to (a) find sum of digits and (b) sum up to that number.
 2. Write a shell script to accept two file names as arguments. Check whether the file Contents are same or not.
 3. Write a shell script to accept two file names and check if both exist. If the second file name exists then the contents of the first file name should be appended to it. If the second file name does not exist then create a new file with contents of the first filename.
 4. Write a menu driven shell script to check if the given string and the number are Palindromes.
 5. Write a shell script to search a file from the current directory in any of the Subdirectories and report the path.
 6. Write a shell script to prepare payslip
4. Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	The R Book	Michael J. Crawley	2007	John Wiley & Sons Ltd,
2	R for Everyone	Jared P. Lander	2014	Pearson Education, Inc
3	The Art of R Programming: A Tour of Statistical Software Design	Norman Matloff	2011	No Starch Press
4	Linux in a nutshell – a desktop quick reference	Ellen sivever, Aarom weber, Stephen figgins, Robers love and Arnold Robbins	(5)	O'Reilly
5	Core Python Programming	-	2006	Spd Pvt ltd,
6	Linux cookbook	-	2004(1)	Michael stutz , Spd Pvt.ltd

E-Resources

- <http://www.tutorialspoint.com/listtutorials/linux>
- <https://lecturenotes.in/subject/455/linux-programming-lp>
- <https://examupdates.in/unix-and-shell-programming/>

a. ELIGIBILITY FOR ADMISSION

Minimum +2 (Open to all on their options)

b. DURATION OF THE COURSE

60 Hours (1 Year)

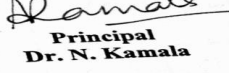
c. EXAMINATION/EVALUATION COMPONENTS

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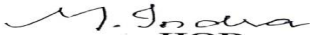

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Sri Sarada College for Women, Tirunelveli 627011
(An Autonomous Institution)
Degree: B.Sc Subject: Information Technology
Programme Structure (wef 2020-2021)

Sem	Part	Category	Course code	Course Title	Hours/week			Credits	P.No
					L	P	T		
1	I	Language	19P1TB1/ 19P1SB1	Tamil/Sanskrit	6	0	6	4	
1	II	Language	19P2EB1	General English I	6	0	6	4	
1	III	Core -1	19UITC11	Introduction to Information Technology and HTML	4	0	4	3	3
1	III	Add on Major	20UITPE11	Professional English for Physical Sciences - I	4	0	4	4	4
1	III	Allied-1	19UITA11	Office Automation	3	0	3	2	5
1	III	Core Lab 1	19UITCL11	HTML Practical	0	3	3	2	6
1	IV	Allied Lab 1	19UITAL11	Word & Spreadsheet Practical	0	2	2	1	7
1	IV	Common	19UCES11	Environmental Studies	2	0	2	2	
Total Number of papers(L+P) =5+2=7				Total	25	5	30	22	
2	I	Language	19P1TB2/ 19P1SB2	Tamil/Sanskrit	6	0	6	4	
2	II	Language	19P2EB2	General English II	6	0	6	4	
2	III	Core-2	19UITC21	Programming in C	4	0	4	3	8
2	III	Add on Major	20UITPE21	Professional English for Physical Sciences -II	4	0	4	4	
2	III	Allied-1	19UITA21	Digital Design	3	0	3	2	9
2	III	Core Lab 2	19UITCL21	Programming in C Practical	0	3	3	2	10
2	IV	Allied Lab 2	19UITAL21	Power point and Database Access Practical	0	2	2	1	11
2	IV	Common	19UCVE21	Value Based Education	2	0	2	2	
Total Number of papers (L+P) = 5+2 =7				Total	25	5	30	22	
3	III	Core-3	19UITC31	Object Oriented Programming with C++	4	0	4	4	12
3	III	Core-4	19UITC32	Internet of Things	4	0	4	4	13
3	III	Allied-3	19UITA31	Fundamentals of Data Structures	4	0	4	4	14
3	III	SB-Major	19UITSL31	DTP and Animation Applications	0	4	4	2	15
3	IV	Non-Major Elective	19UNIT3A	Essentials of Information Technology	2	0	2	2	16
			19UNIT3B	Desk Top Publishing and Multimedia					17
3	III	Core Lab 3	19UITCL31	Object Oriented Programming with C++ Practical	0	6	6	3	18
3	III	Allied Lab 3	19UITAL31	Fundamentals of Data Structures Practical	0	6	6	3	19
3	IV	Common	19UCYP31	Yoga Theory & Practices				1	
Total Number of papers(L+P) = 4+3 = 7+YOGA				Total	14	16	30	22+1	
4	III	Core-5	19UITC41	Java Programming	4	0	4	4	20
4	III	Core-6	19UITC42	Operating System	4	0	4	4	21
4	III	Allied-4	19UITA41	Operations Research and Numerical Analysis	4	0	4	4	22
4	III	SB - Major	19UITSL41	Android Programming Practical	2	4	6	4	23
4	IV	Non-Major Elective	19UNIT4A	Basic Programming Design	2	0	2	2	24
			19UNIT4B	Web Graphic Design					25
4	III	Core Lab 4	19UITCL41	Java Programming Practical	0	6	6	3	26
4	III	Allied Lab 4	19UITAL41	Linux Practical	0	4	4	2	27
4	IV	Common	19UDLT41	Digital Learning Tools				1	28
4	V	Extension Activity	19UNCC41/19UNSS41/19UYRC41/19URRC41/19UPESY41/19UCCC41/19USSS41/19UCGC41	Extension Activity (NCC/NSS,YRC/RRC/PESSY/CCC/SSS/CGC)				1	
Total Number of papers(L+P)= 5+3=8				Total	16	14	30	23+2	
5	III	Core -7	19UITC51	Software Engineering	4	0	4	4	29
5	III	Core-8	19UITC52	Relational Database Management System	4	0	4	4	30
5	III	Core-9	19UITC53	Wireless Application Protocol	4	0	4	4	31
5	III	Major Elective-I	19UITES1	Management Information System	4	0	4	4	32
			19UITES2	Fundamentals of E-Commerce					33
			19UITES3	Enterprise Resource Planning					34
5	III	Core Lab 5	19UITCL51	Relational Database Management System Practical	0	6	6	3	35
5	IV	SB-Common	19UCPD51	Personality Development	2	0	1	1	
5	III	Major Project	19UITCP51	Information Technology for Competitive Examinations & Project	1	5	6	6	36
Total Number of papers(L+P+Proj)=5+1+1 =7				Total	19	11	30	26	
6	III	Core-10	19UITC61	Machine Learning using Python	4	0	4	4	37
6	III	Core-11	19UITC62	Web Programming	2	0	2	2	38
6	III	Core-12	19UITC63	.NET Programming	2	0	2	2	39
6	III	Core-13	19UITC64	Data Communications and Networking	4	0	4	4	40
6	III	Major Elective-II	19UIT61	Introduction to Cloud Computing	5	0	5	5	41
			19UIT62	Computer Graphics					42
			19UIT63	Internet Security					43
6	III	Core Lab 6	19UITCL61	Python Programming Practical	0	5	5	3	44
6	III	Core Lab 7	19UITCL62	Web Programming Practical	0	4	4	2	45
6	III	Core Lab 8	19UITCL63	.NET Programming Practical	0	4	4	2	46
Total Number of papers(L+P)= 5+3=8				Total	17	13	30	24	


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PRINCIPAL
Dr. N. KAMALA

(An Autonomous Institution)
(Affiliated to Manonmaniam Sundaranar University, Tirunelveli-627012)
Institution recognised u/s 2(f) and 12(B) of UGC & Reaccredited with "A" grade by NAAC
(A branch of Sri Ramakrishna Tapovanam, Tirupparaithurai)
Degree: B.Sc Subject: Information Technology

Programme Outcomes (PO):

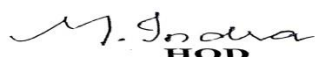
The purpose of the Information Technology major is to prepare qualified individuals for management and support positions in the IT field by providing hands-on training in hardware, software, networking, user support, project management and trouble-shooting.

At the completion of the Information Technology programme, the student will be able to:

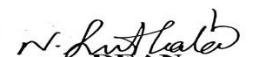
1. Code, test and debug entry-level computer programs using an appropriate computer language and techniques.
2. Create an object-oriented class structure, with corresponding properties and methods.
3. Identify information technology related problems, analyze them and design the system or provide the solution for the problem.
4. Apply current technical concepts and practices in the core information technologies of human computer interaction, information management, programming, networking, and web systems and technologies.
5. Analyze and select application and operating system settings to create an optimal user environment
6. Design, plan, budget and propose an IT project for an identified need within a specific scope.
7. Identify and resolve technical problems using trouble-shooting and research techniques.
8. Create a Web site consisting of several pages, with hyperlink navigation between the pages.
9. Create a flexible database schema and Design effective and efficient queries to retrieve data from a database

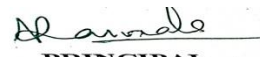
Programme Specific Outcomes

1. The graduates will become successful professional by demonstrating logical and analytical thinking abilities in the field of IT.
2. The graduates will engage in lifelong learning and professional development through advanced degrees in information technology, discussion, professional studies and research.
3. The graduates will work and communicate effectively in interdisciplinary environment, either independently or in team, and demonstrate scientific leadership in academia and industry.
4. Analyze technical requirements to determine resource requirements and the impact the solution will have on an organization.
5. Perform end user support including identifying and implementing solutions to user requests.
6. Install technical hardware and software including network, database and security components.
7. Perform routine maintenance to maintain the currency of an operating system, network, database and security needs.


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UIT –BOS-Sri Sarada College for Women (Autonomous), Tirunelveli- 627011
SEMESTER I

Programme: B.Sc	Subject: Information Technology
Course code: 19UITC11	Course Title: Introduction To Information Technology And HTML
Category: Core -1	Credits: 3Hours:4

Objective:

- Upon Completion of the course students
1. Learn the basic knowledge of Computers and Role of Information Technology
 2. Can design simple web pages using HTML

Units	Detailed Syllabus	Outcome	Hours
1	Information Technology Basics:Introduction, Information, Technology, Information technology, Present Scenario, Role of Information Technology, Information technology, and internet, careers in IT industry – Computer Memory and Storage Introduction, memory hierarchy, Random Access Memory (RAM), Read Only memory (ROM). Input Output Media:Introduction, types of input devices, type of output devices.	Students can 1. Know the basic knowledge of IT industry 2. Learn about input and output devices 3. Understand the hierarchy of Memory system	12
2	Internet:Introduction – what is Internet – History of Internet – How the web works – Web server and clients – ISP, ISDN – Domain naming system – Internet Hypertext – HTML – Basic components of HTML – Formatting the HTML text	Students can 1. Acquire knowledge about basics of Internet and DNS 2.Study about how the hypertext are applied in webpages 3. Learn about basic components in HTML	12
3	URL - protocol – server name – port – Relative URLs and Absolute URLs – linking to other HTML Documents – Linking inside the same document – Linking to other Internet Services.Cascading Style sheet	Student can 1. Understand about types of URLs 2. Absorb about how linking is done for variety of webpages 3. Learn about basics of CSS and apply CSS for web page	12
4	Lists in HTML – ordered Lists – Using ordered lists – Unordered Lists – Directory Lists – Definition Lists – Combining list types Graphics and Web pages – Image formats and Browsers – Graphics and HTML Documents – Images and Hyperlink anchors – Image Maps-Introduction to HTML5 - Canvas element to draw shapes and images	Student can 1. Learn about Lists in HTML 2. Learn about various image formats supported by HTML 3. Learn about how to draw images and shapes in canvas through HTML 5	12
5	HTML Tables – aligning table elements – row and column spanning – frames in HTML – Frameset container HTML Forms – The <input> tag – Scrolling Marques- Form tags in HTML5	Students can 1. Know how to use tables and frames as navigational aids on a Web site. 2. Learn about implementing scrolling text in web pages. 3. Create, validate, and publish controls in a web page.	12

Text Books

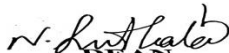
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Computer Fundamentals and Windows with Internet Technology	N. Krishnan	2001(1)	Scitech Publication India Pvt.Ltd
2	Fundamentals of Information Technology	Alexis Leon and Mathew Leon	2009(2)	Vikas Publication
3	HTML & CSS: The Complete Reference	Thomas Powell	2017(5)	Mc-Graw Hill Education

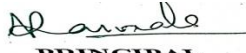
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Introduction to Computers	Peter Norton	2014(6)	Mc-Graw Hill Education
2	HTML Introduction to Web page Design and Development	David Mercer	2001(1)	Mc-Graw Hill Education


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IT –BOS-Sri Sarada College for Women (Autonomous), Tirunelveli- 627011
SEMESTER I

Programme: B.Sc	Subject: Information Technology
Course code: 20UITPE11	Course Title: Professional English for Physical Sciences - I
Category: Add on Major	Credits: 4Hours:4

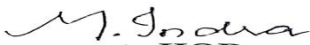
Objectives:

- 1. To develop the language skills of students by offering adequate practice in professional contexts.
- 2. To enhance the lexical, grammatical and socio-linguistic and communicative competence of first year physical sciences students
- 3. To focus on developing students’ knowledge of domain specific registers and the required language skills.
- 4. To develop strategic competence that will help in efficient communication
- 5. To sharpen students’ critical thinking skills and make students culturally aware of the target situation.

Learning outcomes:

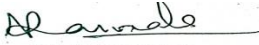
- 1. Recognize their own ability to improve their own competence in using the language
- 2. Use language for speaking with confidence in an intelligible and acceptable manner
- 3. Understand the importance of reading for life
- 4. Read independently unfamiliar texts with comprehension
- 5. Understand the importance of writing in academic life
- 6. Write simple sentences without committing error of spelling or grammar

Unit	Detailed Syllabus
I	COMMUNICATION Listening: Listening to audio text and answering questions- Listening to Instructions Speaking: Pair work and small group work. Reading: Comprehension passages –Differentiate between facts and opinion Writing: Developing a story with pictures. Vocabulary: Register specific - Incorporated into the LSRW tasks
II	DESCRIPTION Listening: Listening to process description.-Drawing a flow chart. Speaking: Role play (formal context) Reading: Skimming/Scanning-Reading passages on products, equipment and gadgets. Writing: Process Description –Compare and Contrast Paragraph-Sentence Definition and Extended definition- Free Writing. Vocabulary: Register specific -Incorporated into the LSRW tasks.
III	NEGOTIATION STRATEGIES Listening: Listening to interviews of specialists / Inventors in fields (Subject specific) Speaking: Brainstorming. (Mind mapping). Small group discussions (Subject- Specific) Reading: Longer Reading text. Writing: Essay Writing (250 words) Vocabulary: Register specific - Incorporated into the LSRW tasks
IV	PRESENTATION SKILLS Listening: Listening to lectures. Speaking: Short talks. Reading: Reading Comprehension passages Writing: Writing Recommendations Interpreting Visuals inputs Vocabulary: Register specific - Incorporated into the LSRW tasks
V	CRITICAL THINKING SKILLS Listening: Listening comprehension- Listening for information. Speaking: Making presentations (with PPT- practice). Reading: Comprehension passages –Note making. Comprehension: Motivational article on Professional Competence, Professional Ethics and Life Skills) Writing: Problem and Solution essay– Creative writing –Summary writing Vocabulary: Register specific - Incorporated into the LSRW tasks


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UIT –BOS-Sri Sarada College for Women (Autonomous), Tirunelveli- 627011
SEMESTER I

Programme: B.Sc	Subject: Information Technology
Course code: 19UITA11	Course Title :Office Automation
Category: Allied - 1	Credits: 2 Hours:3

Objective

1. To create their own documents, CV, Charts and collate data together
2. To gain the knowledge needed to effectively develop an almost customized software platform for any office environment.
3. Familiarization with PowerPoint gives the ability to create slide shows and handouts that will make any seminar or meeting a complete success.

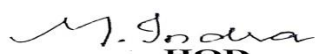
Units	Detailed Syllabus	Outcome	Hours
1	Microsoft word: Word processor Basics – Introduction to Microsoft Word XP-Opening, Saving, Closing the Document and Quitting Word – Previewing – Printing – Changing the size of a document.Editing the Document: Opening an existing word document – Moving the cursor – Making changes in your document – Undoing any operation – Saving changes made to the Document – Checking Spelling in the Document – Automatic correction of errors – Printing the file – Saving and Closing the Document.	Student can 1.Work with the basic features of Word 2. Select and work with text in a document 3.Able to create a new document work with it and print the document	8
2	Designing your Document: Creating a well formatted Document – Setting the Left , Right , Top and Bottom Margins – Setting page Numbers on your Document – Specifying text at the top and the Bottom of each page. Creating Tables : Selecting Text using the mouse – Inserting Rows – Inserting Columns – Deleting a Row – Deleting a Column – Formatting the Text – Mail Merge-Macro	Student can 1.Employ a range of font formatting techniques 2.Make and modify tabs and tables 3.Use the Mail Merge Wizard to perform mail merges	8
3	Microsoft Excel: Introduction to Microsoft Excel-Spreadsheet Basics – Use of Spreadsheet – Formatting a Spreadsheet – Graphs – Functions of Microsoft Excel – Starting– Excel Work Environment – Changing size of a Work book and Excel Window – Cell and Cell Address – Standard Toolbar – Formatting toolbar – the Formula bar –Components of an Excel Workbook. Working in Excel : Entering data – Mathematical Calculations – Formulas using numbers – Formula using Cell address – Defining functions simple Graphs.	Student can 1.Open and navigate within workbooks and worksheets 2.Make changes to data in a workbook and understand to work with ranges in a worksheet 3.Understand, create and work with formulas and functions	8
4	Microsoft Access: Introduction to Databases – Defining a Database – Macros – Functions of a DBMS – Starting Microsoft Access – Creating Tables –Creating database - Creating a Table – Working on Tables – Saving the Table – Defining primary Key – Reports and Forms-Closing the Table – Closing the Database window and Quitting Access.	Student can 1.Build a database structure using Access 2.Add and work with the records in a database table 3.Generate meaningful queries, reports and from tables	8
5	Microsoft PowerPoint: Starting PowerPoint – Creating a presentation – Saving a Presentation - working with views – Adding Graphics, Charts and Tables – Masters – Using Slide Transition- Printing – Closing the Slides – Quitting Microsoft PowerPoint. Introduction-Outlook Express-Sending mail	Student can 1.work with the basic features of PowerPoint 2. Create slide presentations that include text, graphics, animation, and transitions. 3.Use design layouts and templates for presentations	8

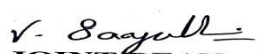
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	The Complete Reference Office 2000	Stephen L. Nelson	2002(6)	Tata McGraw Hill
2	Comdex Computer Course Kit –Windows XP with office 2007	Gupta Vikas	2013(1)	Dream Tech Publishers New Delhi
3	Computer Basics with Office Automation 2010	Archana Kumar	2011(1)	IK International Pvt. Ltd

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Computer Fundamentals and Office Automation	Vishal Verma	2005(5)	Vision Publication
2	Window and MS Office 2000 with Database Concepts	N. Krishnan	2001(1)	Scitech publications (India) Pvt Ltd


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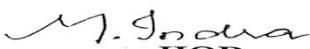
UIT –BOS-Sri Sarada College for Women (Autonomous), Tirunelveli- 627011
SEMESTER I

Programme: B.Sc	Subject: Information Technology
Course code: 19UITCL11	Course Title: HTML Practical
Category: Core Lab -1	Credits:2 Hours:3

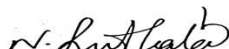
Objectives

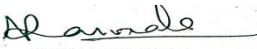
- 1. To create a webpage using all input controls.
- 2. To design a webpage with hyperlink.
- 3. To design a webpage with frames, table and list etc

S.No	EXERCISES
1	A. Write HTML code to develop a web page having the background in red and body “My First Page” in any other color. B. Create a HTML document giving details of your name, age, telephone, address, roll no. using align tag. C. Write HTML code to design a page containing a text in a paragraph give suitable heading style. 4. Design a page having background color given text color red and using all the attributes of font tab.
2	A. Write HTML code to create a Webpage that contains an Image as its center. B. Create a web Page using href tag having the attribute alink, vlink. C. Write a HTML code to create a web page of pink color and display moving message in red color.
3	A. Create a web page, showing an ordered list of name of your five friends. B. Create a HTML document containing a nested list showing the content page of any book C. Create a web page, showing an unordered list of name of fruits
4	Create a table in HTML with Dummy Data Name of Train Place Destination Train No Time Fare Arrival Departure
5	Write HTML code to create a web page that displays your class time table.
6	A) Create a web page with Table using Frame concept. B) Create a web page having two frames one containing links and another with contents of the links. When link is clicked appropriate contents should be displayed on Frame 2.
7	Design an application form using all input types
8	Design a website of your own by using all html tags.


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UIT –BOS-Sri Sarada College for Women (Autonomous), Tirunelveli- 627011
SEMESTER I

Programme: B.Sc	Subject: Information Technology
Course code: 19UITAL11	Course Title: Word & Spreadsheet Practical
Category: Allied Lab -1	Credits: 1 Hours:2

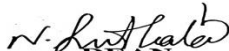
Objective

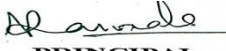
- 1. To familiarize the students in preparation of documents and excel sheet with office automation tools.
- 2.To impact the knowledge and usage of various Microsoft tools such as Word and Excel.

S.NO	EXERCISES
MS WORD	
1	Prepare a word Document for spell checking and Thesaurus
2	Prepare a documents and apply Cut, Copy and Paste operations.
3	Find a word and Replace with another in a document.
4	Insert Header and Footer with the name of the Dept and Page No. in a document.
5	Insert a picture in your document
6	Insert Mathematical symbols using Microsoft Equation3.0
7	Prepare News Paper Format(Apply alignment, Font, Property, Line Spacing, Picture Format)
8	Prepare Bio-Data and insert the contents of qualification within the table
9	Mail merge
10	Macros
MS EXCEL	
1	Apply formulas and functions
2	Create Pivot table
3	Chart for population growth
4	Apply ascending and descending.
5	Apply auto format.


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UIT –BOS-Sri Sarada College for Women (Autonomous), Tirunelveli- 627011
SEMESTER II

Programme: B.Sc	Subject: Information Technology
Course code: 19UITC21	Course Title: Programming in C
Category: Core -2	Credits:3Hours:4

- Objective:**
1. To analyze problems efficiently and develop Comprehensive logic to solve it
 2. To Obtain the knowledge about the structure of the programming language C
 3. To develop algorithms and flow charts for simple problems and to write C Program in structured manner

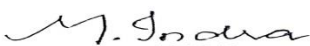
Units	Detailed Syllabus	Outcome	Hours
1	Fundamentals of Computers:Components of a PC – The Systems unit – Different Types of Computers – Setting up a System – Turning on the System – Logging on – Using the mouse – Windows Desktop – Hardware and Software – Installing the Software. Starting Windows XP:Getting familiar with the Desktop – Moving from one Window to another Enlarging a window to screen size – Reverting a window to its previous size – Reducing the Window to a taskbar button – Opening a taskbar button into a window – Adjusting the windows size freely Closing Window – Creating a shortcut for a program – Quitting Window XP.	Student can 1. Identify computer systems technical specifications 2. Identify and analyze computer hardware, software, and network components. 3. Enlighten basic of Windows XP operating system	12
2	Declarations:Introduction – Character set – C Tokens – Keywords and Identifiers – Constants – Variables - Data Types - Declaration of Variables - Declaration of Storage class - Assigning Values to Variables - Defining Symbolic Constants - Declaring Variable as Constant - Declaring Variable as Volatile - Overflow and Underflow of Data. Operators and Expressions:Introduction - Arithmetic Operators - Relational Operators - Logical Operators– Assignments Operators – Increment and decrement operators – Conditional operators – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Operators – some computational problems – Type computational problems – Type conversions in Expressions – operator precedence and Associative – Mathematical Functions. Managing Input and Output Operations:Introduction – Reading a character – Writing a Character – Formatted Input – Formatted Output	Student can 1. Understand basic structure of the C-PROGRAMMING, declaration and usage of variables 2. Write, compile and debug programs in C language and use different data types for writing the programs. 3. Understand about different types of operator depending on the logic in programs.	12
3	Decision Making and Branching:Introduction – Decision Making with IF Statement – Simple IF Statement – The IF. Else statement – Nesting of IF. Else Statement-the ELSE.IF Ladder -the Switch Statement – The? Operator – The GOTO Statement. Decision Making and Looping:Introduction –The WHILE Statement – The DO Statement – The FOR Statement – Jumps in Loops – Concise Test Expression.	Student can 1. Design programs connecting decision structures, loops and functions 2. Exercise conditional and iterative statements to write C programs	12
4	Arrays:Introduction – One Dimensional Arrays – Declaration of Dimensional Arrays- Initialization of One Dimensional Arrays –Two Dimensional Arrays – Initializing Two Dimensional Arrays – Multi – Dimensional Arrays – Dynamic Arrays. Character Arrays and Strings:Introduction – Declaring and Initializing String Variables- Reading Strings from Terminal – Writing Strings to Screen Arithmetic Operations on Characters –putting Strings to together – Comparison of Two String – Strings Handling Functions – Table of Strings- Pointers : Declaring and Initializing pointer	Student can 1. Design, implement, test and debug programs that use arrays for character strings and that use pointers for character strings 2.Ability to design and develop Computer programs, analyzes, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage	12
5	User - Defined Functions: User Defined Functions –Defining functions – Return values and their Types - Functions Calls - Function Declaration - Category of Functions - No Arguments and No Return values - Arguments but No Return Values - Arguments with Return Values – No Arguments but Returns a Value – Functions that Returns multiple values – Nesting of Functions-Recursion-Passing Arrays to Functions- Passing Strings to Functions- Passing String to Functions. Structure and Unions:Defining a Structure – Declaring Structure Variables – Accessing Structure members –Operations on Individual Members – Arrays of Structures – Arrays within Structures- Structures with structures- Structures and Functions – Unions. Command Line Argument	Student can 1. Exercise user defined functions to solve real time problems 2.Able to define Structure and use them in simple data processing applications 3.Able to define Union as user defined data types and Command Line Argument for main function	12

Text Books

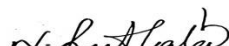
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Programming in ANSI C	E. Balagurusamy	2012(6)	Tata McGraw Hill Publishing Company
2	Programming with C, Schaum's Outline Series	Gottfried	2009(2)	Tata McGraw Hil
3	Programming in C	Ashok N. Kamthane	2011(2)	Pearson Education

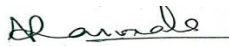
Reference Books

S.No	Title of the Book	Author	Edition, Year	Publication
1	C: The Complete Reference	H. Schildt	2000(4)	TMH Edition
2	Programming in C	D.Ravichandran	2002 (2)	New Age International Publishers


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UIT –BOS-Sri Sarada College for Women (Autonomous), Tirunelveli- 627011
SEMESTER II

Programme: B.Sc	Subject: Information Technology
Course code: 19UITA21	Course Title: Digital Design
Category: Allied -2	Credits: 2 Hours:3

Objective

- 1. To acquire the basic knowledge of digital logic levels and application of knowledge to understand digital electronics circuits.
- 2. To prepare students to perform the analysis and design of various digital electronic circuits.

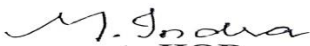
Units	Detailed Syllabus	Outcome	Hours
1	Digital Systems and Binary Numbers: Digital Systems – Binary Numbers – Numbers – Base Conversions – octal and Hexadecimal Numbers – Complements – Signed Binary Numbers – Binary Codes – ASCII code -Excess-3code - Gray Code -Binary Storage and Registers-Binary Logic. Boolean Algebra:Introduction – Basic Definitions – Axiomatic Definition of Boolean algebra – Basic Theorems and properties of Boolean Algebra – Boolean Functions.	Student can 1.Understand the Digital number system and their conversions 2. Understand how logic circuits and Boolean algebra forms as the basics of digital computer. 3.Explains the simplification of logical statements with using Boolean rules and De-Morgan theorems	8
2	Logic Gates:Canonical and Standard Forms – other Logic Operations – Digital Logic Gates – integrated Circuits. Gate –Level Minimization:Introduction – The Map Method – Four – Variable Map-Five – Variable Map – Product –of-Sums Simplification –Don’t Care Conditions.	Student can 1.Identify the operations of logic Gates and simplify the Boolean expressions using K-Map 2. Build simple logic circuits using Basic gates and Universal Logic gates. 3. Minimize the Boolean expression using Boolean algebra and design it using logic gates	8
3	NAND and NOR Implementation – Other Two – Level Implementations – Exclusive OR Function-Error Detection codes-Combinational Logic:Introduction – Combinational Circuits – Binary Adder – Subtractor – Decimal Adder – Binary Multiplier	Student can 1.Comprehend the fundamental principles of simple Arithmetic Circuits 2. Analyze, design and implement combinational logic circuits.	8
4	Decoders – Encoders – Multiplexers Synchronous Flip Flop -RS Flip-flop -D Flip-flop-T Flip- JK Flip-flop - JK Master Slave Flip-Flop	Student can 1. Realize the design of various types of Flip Flops. 2. Prepares time flow chart, logic symbol and truth table of R-S,JK,D and T type flip-flops	8
5	Basic Computer Organization and design: Instruction codes -Stored program Organization-Direct Address - Indirect Address -Memory Organization: Memory Hierarchy -RAM-ROM - Input/output Devices	Student can 1. Understand the organization of a Computer system. 2. Gain the knowledge about the memory elements like RAM, ROM, and Magnetic Disk memories.	8

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Digital Design	M. Morris Mano, Michael D. Ciletti	2008(4)	Prentice Hall of India Private Ltd
2	Computer System Architecture	M. Morris Mano	2000(3)	Prentice Hall of India Private Ltd
3	Digital Principles and Design	Donald D. Givone	2003(1)	Tata McGraw –Hill Publishing Company Limited, New Delhi.

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Modern Digital Electronics	RP Jain	2009(4)	McGraw Hill Education
2	Digital Logic and Computer Design	M.Morris Mano	2005(3)	Prentice Hall of India Private Ltd


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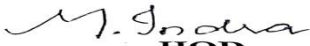
UIT –BOS-Sri Sarada College for Women (Autonomous), Tirunelveli- 627011
SEMESTER II

Programme: B.Sc	Subject: Information Technology
Course code: 19UITCL21	Course Title: Programming in C Practical
Category: Core Lab -2	Credits:2 Hours:3

Objectives

- 1. To make the student learn a programming language.
- 2. To learn problem solving techniques.
- 3. To teach the student to write programs in C and to solve the problems.

S.NO	EXERCISES
1	Write a C program to check the given number is prime or not.
2	Write a program to calculate simple Interest and Compound Interest.
3	Write a C program to find the roots of a Quadratic Equation using simple if statement.
4	Write a C program to sort numbers in ascending order using for statement.
5	Write a C program to print Fibonacci Series using while statement.
6	Write a C program to find the value of $1^3+2^3+5^3+.....+25^3$ using do... while statement.
7	Write a C program to print the grade of a student using switch... case statement.
8	Write a C program for simple calculator using switch/case loop.
9	Write a C program to read in a three digit number produce following output (assuming that the input in 539) 5 hundreds 3 tens 9 units.
10	Write a C program for swapping two variables without using third variable.
11	Write a C program to prepare EB Bill using if...elseifladder.
12	Write a C program to find sum of Digits and reverse of the number using function.
13	Write a C program to find factorial and GCD value using recursion.
14	Write a C program to find the product of two Matrices.
15	Write a C program to arrange the names in alphabetical order using strcmp() function.


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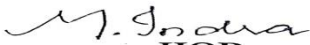
SEMESTER II

Programme: B.Sc	Subject: Information Technology
Course code: 19UITAL21	Course Title: Power point and Database Access Practical
Category: Allied Lab -2	Credits: 1 Hours:2

Objectives

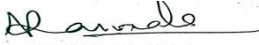
- 1.To Create slide presentations that include text, graphics, animation, and transitions.
- 2.Practise using useful PowerPoint tools and functions to prepare creative designs and slides
- 3.Gain a superior understanding of the various PowerPoint tools, and how they can be used in your presentations, to create impactful and professional PowerPoint presentations

S.NO	EXERCISES
MS POWERPOINT	
1	Create power point presentation with 3 slides
2	Create a presentation with 3 slides
3	Create a presentation with animation.
4	Create a power point presentation with 4 slides. Set slide transition time of 3 seconds and Display your presentation.
5	Create a presentation with auto content wizard.
MS ACCESS	
1	Create an employee database
2	Create a student database. Set a field to primary key
3	Create a salary list preparation
4	Create a report
5	Create a Mailing Labels


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UIT –BOS-Sri Sarada College for Women (Autonomous), Tirunelveli- 627011
SEMESTER III

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITC31	Course Title: Object Oriented Programming with C++
Category: Core -3	Credits: 4Hours:4

Objectives:

1. To understand how C++ improves C with object-oriented features.
2. To learn how to write inline functions for efficiency and performance.
3. To learn the syntax and semantics of the C++ programming language.
4. To learn how to design C++ classes for code reuse.

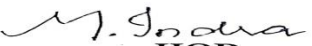
Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction to C++: Evolution of C++ - ANSI Standard–Object Oriented Technology– Key Concepts of Object Oriented Programming – Advantages of OOP – Object Oriented Languages. Input and Output in C++ : Streams in C++ - Pre-Defined Streams – Buffering – Stream Classes – Formatted and Unformatted Data – Unformatted Console I/O Operations. C++ Declarations : Parts of C++ Program – Types of Tokens – Keywords – Identifiers – Dynamic Initialization – Data Types in C++ - Basic Data Type – Derived Data Type – User Defined Data Type – The void Data Type – Type Modifiers – Wrapping Around – Typecasting – Constants – Constant Pointers – Operators in C and C++ Precedence of Operators in C++	Students can 1. Understand the Importance of OOPs concept over procedural language. 2. Understand the detail idea of streams.in C++ 3.Understand the precedence and type casting in C++	12
2	Control Structures: Decision – Making Statements – The if-else Statements – The jump Statement – The goto Statement – The break Statement – The Continue Statement – The switch case statement – Loops – The for Loop – Nested for Loops – The While Loop – The do-while Loop. Functions in C++ : The main() Function – Parts of Function – Passing Arguments – L Values and R Values – Return by Reference – Default Arguments – Inline Functions – Function Overloading – Principles of Function Overloading – Recursion-Library Functions.	Students can 1.Gain the deep knowledge of control statements 2.Have the Idea about function and its return types 3.Know the Implementation of Recursion	12
3	Classes and Objects: Classes in C++ - Declaring Objects–The Public Keyword–The Private Keyword – The protected keyword – Defining Member Functions – Data Hiding or Encapsulation – Classes, Objects and Memory – Static Member Variables and Functions – Static Object – Array of Objects – Objects as Functions Arguments – Friend Functions – Recursive Member Function – Local Classes – The main() as a Member Function – Overloading Member Functions – Overloading main() Function. Constructor and Destructors : Characteristics of Constructors and Destructors – Applications with Constructors – Constructors with Arguments – Overloading Constructors – Constructor with Default Argument – Copy Constructors – The const Object – Destructors – Calling Constructor and Destructors – Anonymous Objects –Local Vs Global Object.	Students can 1.Know the importance of objects in OOPs concepts 2.Gain the knowledge about constructor and destructor, friend function 3.Know about member function overloading	12
4	Operator Overloading and Type Conversion : The Keyword Operator– Overloading Unary Operators – Operator Return Type – Constraint on Increment and Decrement Operators – Overloading Binary Operators –Rules for Overloading Operators. Inheritance: Access Specifier and Simple Inheritance – Types of Inheritances – Single Inheritance – Multilevel Inheritance – Multiple Inheritance – Virtual Base Classes. Pointers and Arrays: Pointer Declaration - Pointer to Class – Pointer to Object – this Pointer – Base Classes – Arrays – Characteristics of Arrays – Arrays of Classes.Templates: Introduction -Function Templates- Class Templates-Sub Class Templates	Students can 1.Learnhow to Implement operator overloading 2.Understand the different types of Inheritance 3.Know about the C++ template concepts	12
5	C++ and Memory: Memory Models–The New and delete Operators– Dynamic Objects Binding Polymorphism and Virtual Functions : Binding in C++ - Virtual Functions – Rules for Virtual Functions – Pure Virtual Functions Applications with Files : File Stream Classes – Steps of File Operations – Finding End of a File – File Opening Modes – File Pointer and Manipulators – Manipulators with Arguments – Sequential Read and Write Operations- Binary and ASCII Files – Random Access Operations.	Students can 1.Learn about Polymorphism 2.Identify the rules for virtual function 3.Understand the File concepts	12

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Programming in C++	Ashok N. Kamthane	2005(2)	Pearson Education India
2	C++ : The Complete Reference	Herbert Schildt	2002(4)	McGraw-Hill Education
3	Programming with C++	John R Hubbard	2006(6)	McGraw-Hill Education

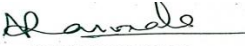
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Programming with C++	D. Ravichandran	2011(3)	McGraw-Hill Education
2	The C++ Programming Language	Stroustrup	2018(4)	Pearson Education India


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UIT –BOS-Sri Sarada College for Women (Autonomous), Tirunelveli - 627011
SEMESTER III

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITC32	Course Title:Internet of Things
Category: Core-4	Credits:4 Hours:4

Objectives

- 1. To understand the definition and significance of the Internet of Things
- 2. To discuss the architecture, operation, and business benefits of an IoT solution
- 3. To examine the potential business opportunities that IoT can uncover
- 4. To explore the relationship between IoT, cloud computing, and Big data
- 5. To identify how IoT differs from traditional data collection systems

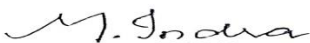
Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction to IoT Defining IoT, Characteristics of IoT, Physical design of IoT, Logical design of IoT, Functional blocks of IoT, Communication models & APIs	Students can 1.Understand about how IoT works. 2.Know about the Abstract representation of entities 3.Understand how the devices directly connect and communicate between one another	12
2	IoT and M2M Machine to Machine, Difference between IoT and M2M, Software define Network M2M to IoT-The Vision-Introduction, From M2M to IoT, M2M towards IoT-the global context	Students can 1.AcquireMachine-based intelligence 2.Know in how M2M solutions can move towards IoT 3.Acquire the knowledge about global business perspective	12
3	Domain specific applications of IoT Home automation, Industry applications, Surveillance applications, Other IoT applications Challenges in IoT Design challenges, Development challenges, Security challenges, Other challenges	Students can 1.Apply the concept in various fields 2.Comprehend about the development and design issues 3.Learn about aware of security challenges	12
4	Developing IoTs Introduction to Python, Introduction to different IoT tools, Developing applications through IoT tools, Developing sensor basedapplication through embedded system platform, Implementing IoT concepts with python	Students can 1.Familiarized in learning about Python software 2. Understand about the knowledge about the sensor based IoT 3.Learn about embedded system platform	12
5	IOT Physical Devices &Endpoint What is an IoT device –Introduction to Raspberry pi –Raspberry pi Interface – other IoT device	Students can 1. Familiarized withIoT hardware devices 2.Learnabout Raspberry pi interface 3.Understand about how other devices connected to IoT devices	12

Text Books

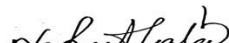
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Internet of Things (A Hands-on-Approach)	Vijay Madiseti and ArshdeepBahga	2014(1)	VPT
2	From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence	Jan Holler, VlasiosTsiatsis, Catherine Mulligan, Stefan Avesand, StamatisKarnouskos, David Boyle	2014(1)	Academic Press

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Fundamentals of Wireless Sensor Networks: Theory and Practice	WaltenegusDargie, ChristianPoellabauer	2011(1)	Wiley
2	Rethinking the Internet of Things: A Scalable Approach to Connecting Everything	Francis da Costa	2013(1)	Apress Publications


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UIT-BOS- Sri Sarada College for Women (Autonomous), Tirunelveli- 627011
SEMESTER III

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITA31	Course Title: Fundamentals of Data Structures
Category: Allied - 3	Credits: 4Hours:4

Objectives

1. To impart the basic concepts of data structures.
2. To understand concepts about searching and sorting techniques
3. To understand basic concepts about stacks, queues, trees and graphs.
4. To understanding about writing algorithms and step by step approach in solving problems with the help of fundamental data structures.

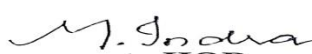
Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction and Overview: Definitions–Concept of Data Structures–Overview of Data Structures – Implementation of Data Structures. One – Dimensional Array – Memory allocation of an Array – Operation on Arrays – Application of Arrays – Multidimensional Arrays – Two dimensional Array – Sparse Matrices – Three Dimensional and n – dimensional arrays – Pointer Arrays.	Students can 1. Develop the knowledge of basic data structures for storage and retrieval of ordered or unordered data. 2.Implement algorithms for the creation, insertion, deletion, searching, and sorting of arrays	12
2	Linked Lists: Definition–Single Linked List–Representation of a Linked List in memory – Operations on a Single Linked List – Circular Linked List – Double Linked List– Operations on a Double Linked List –Circular Double Linked List – Operations on Circular Double Linked List – Applications of Linked List – Sparse Matrix Manipulation – Polynomial Representation – Dynamic Storage Management – Memory Representation– Fixed Block Storage – Variable Block Storage.	Student can Understand the basic concepts of Single Linked list and various types of Linked list 2. Familiar with dynamic storage concepts	12
3	Stacks: Definitions –Representation of a Stack–Array Representation of Stacks–Linked List Representation of Stacks – Operations on Stacks – Application of Stacks – Evolution of Arithmetic Expressions – Implementation of Recursion– Factorial Calculation – Quick Sort. Queue – Definition – Representation of Queues – Representation of Queues uses an Array – Representation of a Queue using a Linked List – Various Queue Structures – Circular Queue – Dequeue – Priority Queue–Application of Queues–Round Robin Algorithm	Students can Understand the basic concepts about stacks, queues 2.Comprehend the operations such as insertion, deletion 3.Familiar about application of stacks and queues	12
4	Tables :Hash Tables–Hashing Techniques–Collision Resolution Techniques–Closed Hashing – Open Hashing – Comparison of Collision Resolution Techniques. Definitions and Concepts -Binary Trees-Properties of Binary Trees-Representation of Binary Tree – Linear Representation of Binary Tree- Linked Representation of Binary Tree – Physical Implementation of a Binary Tree in Memory – Operation on a Binary Tree – Insertion – Deletion – Traversals – Merging together Two Binary Trees – Types of Binary Trees – Expression Tree – Binary Search Tree – Heap Tree – Thread Binary Tree.	Students can Have the knowledge about Tables and Trees Have the knowledge about Binary Trees and its types 3.Learn the Memory representation of Trees	12
5	Sorting: Sorting Techniques–Straight Insertion Sort–Straight Selection Sort–Heap Sort – Bubble Sort – Shell Sort – Quick Sort–Bucket sort – Merge Sort –Searching – Linear Search Techniques – Linear Search with Array – Linear Search with Linked List – Linear Search with Ordered List – Binary Search	Students can Comprehend the knowledge of various sorting and search techniques Analysis sorting and searching algorithms Identify and apply the suitable data structure for the given real world problem	12

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Classic Data Structures	DebasisSamanta	2009(2)	PHI Learning Limited
2	Data Structures and Object Oriented Programming with C++	RohitKhurana	2005(2)	Vikas Publishing House
3	Data Structures and Algorithms with C++	Michael T. Goodrich and Roberto Tamassia	2016(2)	Wiley

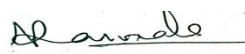
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Data Structures Using C and C++	YedidyahLangsam Moshe J. Augenstein Aaron M. Tenenbaum	2015(2)	Pearson Education India
2	Data Structures A Pseudo code Approach with C++	RichardF.Gilberg BehrouzA.Forouzan	2005(2)	Thomson Brooks/Cole


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SEMESTER III

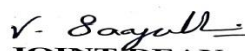
Programme: B.Sc	Subject: Information Technology
Course Code: 19UITSL31	Course Title: DTP and Animation Applications
Category: SB-Major	Credits:2Hours:4

Objectives

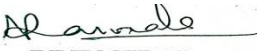
- 1. To Identify desktop publishing terminology and concepts.
- 2. To Manipulate text and graphics to create a balanced and focused layout.
- 3. To Create flyers, brochures, and multiple page documents.
- 4.To effectively utilize the timeline and motion tween effects to produceanimation.

S.No	EXERCISES
	Page Maker
1	Design of ID Card (3” * 2”).
2	Preparation of a small booklet with 6 pages (3.5” * 4.5”).
3	Design a hand bill (5.5” * 8.5”).
4	Design your college progress card.
5	Create a graph/pie chart.
	Photoshop
1	Design of a brochure for an institution.
2	Seasonal Greeting Card
3	Transporting an image from one background to another
4	Design a web page poster (1004 * 750)/text book cover page
5	Crop an image/rotate an image.
	CorelDraw
1	Create an object and fill with multiple colors.
2	Design a book cover.
3	Create a frame and enter a paragraph with different formats of text.
4	Export any five image in a single applications
5	Design page frame by inserting image and objects
	Flash
1	End a Movie Clip using Script
2	Start a graphic animation at a specific frame
3	Text animation using motion tweening
4	Bouncing ball with sound effect
5	Create a scrolling gallery in a page


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UIT – BOS - Sri Sarada College for Women (Autonomous), Tirunelveli - 627011
SEMESTER III

Programme: B.Sc	Subject: Information Technology
Course Code: 19UNIT3A	Course Title: Essentials of Information Technology
Category: Non-Major Elective	Credits: 2 Hours:2

Objectives

1. To explain basic of computer and information Technology
2. To learn basics of computer storage devices
3. To introduce cutting-edge technologies and trends such as those in the areas of wireless multimedia.

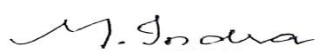
Unit	Detailed Syllabus	Outcomes	Hours
1	Information Technology Basics : Introduction, Information, Technology, Information Technology, Present Scenario, Role of Information Technology, Information Technology and Internet, Careers in IT industry. Computer Organization and Architecture : Central Processing Unit, Inside a Computer, Data representation in Computer, Coding Schemes..	Students can 1.Know about the role of Information Technology in industry 2.Aware of simple and basic computer organization and architecture	6
2	Computer Memory and Storage Introduction: Memory Hierarchy, Random Access Memory (RAM), Read Only Memory (ROM), RAM, ROM and CPU Interaction, Types of Secondary Storage Devices, Magnetic Tape, Magnetic Disk, Types of Magnetic Disk, Optical Disk, type of optical disks..	Students can 1.Obtain knowledge on Memory such as RAM, ROM 2.Learn about the types of secondary storage devices and optical devices 3.Obtain the knowledge on Memory hierarchy	6
3	Input OutputMedia : Introduction, types of input devices, types of output devices. Multimedia Essentials: Introduction, Multimedia: Definition, Building Blocks of multimedia, multimedia system, multimedia applications, Virtual reality.	Students can earn about the input and output devices Well read about Multimedia systems and applications 3. Initiate about virtual reality	6
4	The Internet : Introduction Evolution of Internet – Basic Internet Terms – Getting Connect to Internet – Internet Applications – Data over Internet.WWW-HTML- HTML Tags Internet Tools : Introduction – Web Browser – Browsing Internet using Internet Explorer – E – Mail – Search Engines – Instant Messaging.	Students can earn about the evolution of internet 2. Learn about how to connect to internet 3. Understand about how to use web browsers	6
5	Emerging Trends in IT : Introduction, E-Commerce – Electronic Data Interchange – Mobile Communication – Bluetooth – Global Positioning System – Infrared Communication – Smart Card – Imminent Technologies.	Students can 1.Learn about e-commerce website 2. Understand about GPS systems 3. Acquire knowledge about new emerging technologies	6

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Introduction to Computers	Peter Norton	2014(1)	McGraw Hill Education
2	Information Technology and Computer Application	V.K.Kapoor	2004(3)	Sultan Chand & Sons
3	Introduction to Computers and Information Technology	Glory, Selvanayahi & Joseph Peter	2013(4)	Shekina Publications

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Introduction to Computers and Information System	V.K.Kapoor	2004(3)	Sultan Chand & Sons
2	Introduction to Information Technology	V. Rajaraman	2003(1)	Prentice Hall India Pvt., Limited


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Programme: B.Sc	Subject: Information Technology
Course Code: 19UNIT3B	Course Title: Desktop Publishing and Multimedia
Category: Non-Major Elective	Credits: 2 Hours:2

Objectives

- 1. To Identify desktop publishing terminology and concepts.
- 2. To Manipulate text and graphics to create a balanced and focused layout.

Unit	Detailed Syllabus	Outcomes	Hours
1	Importance and Advantages of DTP, DTP Software and Hardware, Commercial DTP Packages, Page Layout Programs, Introduction to Word Processing, Commercial DTP Package, Difference between DTP Software and Word Processing Software.	Students can 1. Demonstrate knowledge of terminology related to desktop publishing, graphics and animation, and multimedia. 2. Identify and use hardware components (input and output devices) used in desktop publishing, graphics/animation and multimedia	6
2	Types of Graphics, Uses of Computer Graphics Introduction to Graphics Programs, Font and Typefaces, Types of Fonts, Creation of Fonts (Photographer), Anatomy of Typefaces, Printers, Types of Printers used in DTP, Plotter, Scanner.	Students Can 1. Play with variety of color , size and type of font . 2.Have the knowledge about how CAD applications are Printed in	6
3	History and Versions of Page Maker, Creating a new Page, document setup dialog box, paper size, page orientation, margins, different methods of placing text ad graphics in a document. Master Page, story editor, formatting of text, indent, leading, hyphenation, spelling check, creating index, text wrap, position (Superscript/subscript), control palette.	Students can 1. design flyers, brochures, newsletter, magazine etc., 2. design books with different layouts needed for the book	6
4	History, multimedia elements; text, images, sound, animation and video. Text, Concept of plain text and formatted text, RTF & HTML text, image, importance of graphics in, multimedia, image capturing methods, scanner, digital camera, Sound - sound and its effect in Multimedia, analog and digital sound, animation, basics, principles and use of animation, video, basics of video, analog and digital video.	Students can 1.Understand can the basics of multimedia 2.Understand the basic working principles of a Digital Camera and scanner	6
5	Features of multimedia, overview of multimedia, multimedia software tools, multimedia authoring – Production and presentation, graphic file formats, MIDI – Overview, concepts, structure of MIDI, MIDI Devices, MIDI Messages.	Students can 1. Gain the deepest knowledge various multimedia software tools 2. Design and develop various Multimedia Systems applicable in real time	6

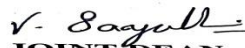
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Comdex Desktop Publishing	Vikas Gupta	2002(1)	Dreamtech Press
2	DTP Desktop	T BALAJI TEAM	2018(2)	T Balaji Publication
3	Comdex Multimedia And Web Design	Vikas Gupta	2007(1)	Dream Tech Press

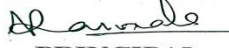
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Multimedia	M.Mahalakshmi	2014(2)	Margham Publications
2.	Multimedia Applications	Ralf Steinmetz, KlaraNahrstedt	2011(1)	International Edition


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UIT-BOS-Sri Sarada College for Women (Autonomous), Tirunelveli - 627011
SEMESTER III

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITCL31	Course Title: Object Oriented Programming with C++ Practical
Category: Core Lab -3	Credits:3 Hours:6

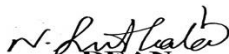
Objectives

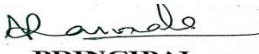
- 1. To practice the fundamental programming methodologies in the C++ programming language.
- 2. To code, document, test, and implement a well-structured, robust computer program using the C++ programming language.
- 3. To write reusable modules (collections of functions).
- 4. To learn how to design and implement generic classes with C++ templates

S.No	EXERCISES
1	Write a C++ Program to declare all members of a class as public. Access the element using objects.
2	Write a C++ Program to calculate simple interest. Hide the data element of the class using private keyword.
3	Write a C++ Program to show difference between static and non-static member variables.
4	Write a C++ Program to declare array of objects. Initialize and display the contents of array.
5	Write a C++ Program to access private data using non-member function. Use friend function.
6	Write a C++ Program to create a class MAT of size of m x n. Define the matrix operations addition, subtraction, input and output by overloading +,-,>> and << operators respectively.
7	Write a C++ Program to overload member function of class.
8	Write a C++ Program to invoke constructor and destructor.
9	Write a C++ Program that overload + & relational (suitable) operator to perform the following operations. i) Concatenation of two Strings
10	Write a C++ Program to create multilevel inheritance. Create classes A1, A2 and A3.
11	Write a C++ Program to derive a class student from multiple base classes mark and sports. Print the details of the student including percentage.
12	Write a C++ Program to show hierarchical inheritance
13	Write a C++ Program to declare an object and pointer to the class. Invoke member functions using pointer.
14	Write a C++ Program to create a class employee that contain two functions getdata() &putdata(). Create array of objects for the specified class and read the values using getdata(). Print the values using putdata().
15	Write a C++ Program to create a function template for finding the minimum value contained in an array.


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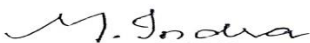
UIT-BOS- Sri Sarada College for Women (Autonomous),Tirunelveli - 627011
SEMESTER III

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITAL31	Course Title: Fundamentals of Data Structures Practical
Category: Allied Lab -3	Credits:3 Hours:6

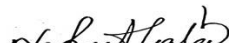
Objectives

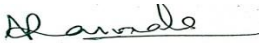
- 1. To design and analyse the time and space efficiency of the data structure.
- 2. To identity the appropriate data structure for given problem.
- 3. To have practical knowledge on the applications of data structures.

S.No	EXERCISES
1	Search an element in an array using Binary Search.
2	Stack Implementation using Array.
3	Queue implementation using Array.
4	Infix to postfix expression.
5	Evaluation of postfix Expression
6	Tree Traversal
7	Merge Sort
8	Selection Sort
9	Quick Sort
10	To Manipulate a Linked List


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SEMESTER IV

Programme: B.Sc	Subject: Information Technology
Course code: 19UITC41	Course Title: Java Programming
Category: Core-5	Credits: 4Hours:4

Objectives

1. To learn why Java is useful for the design of desktop and web applications.
2. To learn how to implement object-oriented designs with Java.
3. To identify Java language components and how they work together in applications.
4. To design and program stand-alone Java applications.

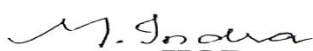
Unit	Detailed Syllabus	Outcomes	Hours
1	The Genesis of Java: Overview of Java–Development of Java–JDE–Data Types–Variables – Arrays – Type Conversion and Casting – Operators – Precedence – Control Statements.	Students can 1. Illustrate basic programming concepts such as program flow and syntax of a high-level general language. 2. Gain the concept of primitive data types, strings and arrays. 3. Differentiate the various control structures.	12
2	Introduction: Classes, Objects – OOPs Concepts – Declaring Objects – Introducing Methods – Constructors – Overloading – this keyword – Garbage Collection – finalize () method – More Examples. Objects as parameters – returning objects – recursion – Access Control – Static – Final– Nested and Inner Classes – Command Line Arguments – Sample Programs.	Students can 1.Understand the importance of Garbage collection in java 2.Learn the Nested - Inner class implementation 3.Understand programs from outside through command line Arguments	12
3	String and String Buffer Class Inheritance: Types of Inheritance–Method Overriding – Dynamic method Dispatch – Abstract Class – Final with Inheritance – More Examples. Packages – Access Protection – Importing Packages – Interfaces – Implement and Applying Interfaces – Sample Programs.	Students can 1. Implement the Abstract class in Java 2. Understand the Packages 3. Learn the advanced concepts like interface	12
4	Exception Handling: Exception Types–Our Own Exception–Handling Exception–Java’s Built in Exception – Thread Class and Runnable Interface – Extending Thread – Creating Multiple Threads – isAlive () and join() methods – Synchronization – suspend (), resume () and stop() threads – Example Programs. I/O packages – Input Stream – Output Stream – File Input and Output Stream – Applet Class – An Applet Skeleton – Simple Applet Display Methods – Example Programs.	Students can 1.Understand the basics of modern programming language, java Exceptions, Methods, Subroutines 2. Understand the Implementation of Applets 3.Understand how to design applications with threads in Java.	12
5	Event Handling : Delegation Event Model–Event Classes–Sources of Events–Event Listener Interface – AWT Controls – Labels – Buttons – Check Boxes – Check Box Group – Lists – Scroll Bar – Text Area – Menu Bars and Menu – Layout Managers– Examples. Java Database Connectivity -Types of JDBC Drivers–Creating a Table–Manipulating data in Table- using java.sql package.	Students can 1. Know about Event Handling 2.Acquire the knowledge about AWT controls 3. Learn the concept of Data Connection in Java	12

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Java 2- The Complete Reference	Herbert Schildt	2002(4)	McGraw Hill Education
2	Java:A Beginner’s Guide	Herbert Schildt	2007(4)	McGraw Hill Education
3	Thinking in Java	Bruce Eckel	2006(4)	Pearson Education India

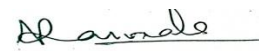
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Programming with Java	E.Balagurusamy	2009(4)	McGraw Hill Education
2	Core Java Volume I- Fundamentals	Cay S. Horstmann	2012(9)	Prentice Hall India Pvt., Limited


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UIT – BOS - Sri Sarada College for Women (Autonomous), Tirunelveli - 627011
SEMESTER IV

Programme: B.Sc	Subject: Information Technology
Course code: 19UITC42	Course Title: Operating System
Category: Core - 6	Credits: 4Hours:4

Objectives

- 1. Gain knowledge of basic operating system concepts.
- 2. To have an in-depth understanding of process concepts, deadlock and memory management.
- 3. To provide an exposure to scheduling algorithms, devices and information management.
- 4. Familiarize on the general structure of an operating system.

Unit	Detailed Syllabus	Outcomes	Hours
1	Operating System: What is an Operating System?– Computing System Architecture :Desktop Systems – Multiprocessor Systems – Distributed Processing – Cluster Systems – Hand held Systems – Functions and Structure – Difference services of the Operating System – Users of system Calls – issue of portability – users view of the operating system – Graphical user interface – Operating System Structure – virtual machine – booting.	Students can 1. Understand the different services of Operating system 2.Differentiate the types of system and processor in operating system 3.Draw the general structure of an operating system	12
2	Information Management: File System–Device Driver– Terminal I/O–CD–ROM. Process Management: Introduction – What is process? Evolution of multiprogramming- Context Switching – Process States – Process State Transitions – Process Control Block – Process hierarchy – Operation on a process – create a process – kill a process– dispatch a process – change the priority of a process – Block a process – dispatch a process – time up a process wake up a process – Suspend/resume operation – Process Scheduling – Multithreading.	Students can 1.Acquire the knowledge about file system and device terminal in an operating system 2.Know about Process Control Block and different state of a process 3. Familiarize with Process scheduling	12
3	Inter Process Communication: the producer/Consumer Problems–solutions to the producer – consumer problems – Classical IPC problems. Deadlocks: Introduction – Graphical representation of deadlock – deadlock prerequisites – deadlock strategies.	Students can 1.Know about how the processes communicate between them 2.Understand the basic Classical IPC problem 3.Understand how deadlocks be Avoided and prevented	12
4	Memory Management: Introduction–Single Contiguous memory management–fixed partition memory management – variable partitions – non contiguous allocation – paging – segmentation – combined system – virtual memory management system.	Students can 1. Familiarize with different types of memory management Techniques 2. Gain the knowledge about how the virtual memory is organized in an operating system 3. Know about various paging and segmentation algorithm used for memory management	11
5	LINUX: Introduction – UNIX and LINUX :Linux Commands -Vi Editors -Shell Programming-The C-Shell - Pipes Filters- Sample Programs	Students can 1. Familiarize with various Linux Command 2. Write and execute a shell program in Linux	12

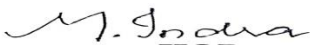
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Operating Systems	Achyut S Godbole	2005(2)	McGraw Hill Education
2.	Operating System	Harvey M. Deitel, Paul J Deitel. David R. Choftness	2005(3)	Pearson Education India
3.	Linux A Practical Approach	B.Mohammed Ibrahim	2005(1)	Firewall Media

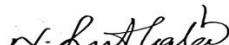
Reference Books

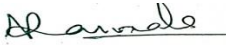
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Operating Systems, Internals and Design Principles	William Stallings	2008(6)	Prentice Hall India Pvt., Limited
2.	Operating System: A Design-oriented Approach	Charles Crowley	2017(1)	McGraw Hill Education

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UIT – BOS - Sri Sarada College for Women (Autonomous), Tirunelveli - 627011
SEMESTER IV

Programme: B.Sc	Subject: Information Technology
Course code: 19UITA41	Course Title: Operations Research and Numerical Analysis
Category: Allied-4	Credits:4Hours:4

Objectives

1. To recognize the importance and value of Operations Research and linear programming in solving practical problems in industry
2. To know about transportation and assignment problems in Operation Research.
3. To interpret the transportation models' solutions and infer solutions to the real-world problems.
4. To provide the numerical methods of solving the non-linear equations, interpolation, differentiation, and integration.
5. To improve the student's skills in numerical methods by using the numerical analysis software and computer facilities.

Unit	Detailed Syllabus	Outcomes	Hours
1	Operations Research -An Overview - Applications of Operations Research Transportation Problem: Introduction– General Transportation Problem–The Transportation Table – Formulation of the Transportation Problem – Triangular Basis in a Transportation Problem – Finding an initial basic feasible solution: North West Corner rule – Least – Cost Method or Matrix Minima Method – Vogel's Approximation Method.	Students can 1. Solve the problem using North West Corner's rule 2.Solve the Problem using Matrix minima method 3.Find the Cost using different method of transportation Problem	12
2	Assignment Problem: Introduction– Mathematical formulation of the problem– The Assignment method – Dual of the Assignment method -The Travelling Salesman Problem.	Students can 1.Identify and express a decision problem in mathematical form 2.Recognize and formulate assignment problems and drive their optimal solution. 3.Solve the problem using Travelling Sales man method	12
3	Sequencing Problem: Introduction–Problem of Sequencing–Basic Terms used in sequencing – Processing n jobs through two machines – Processing n jobs through k machines – Processing 2 jobs through k machines.	Students can 1.Optimize N jobs through 2 machines 2.Optimize N jobs through k machines 3. Optimize 2 jobs through k machines	12
4	Simultaneous equations: Back substitutions–Gauss Jordan elimination method–Calculation of inverse of a matrix – Gauss – Seidel iteration method.	Students can 1.Understand how to related two or more unknown variables in an equation 2.Understand about the Substitution and elimination methods 3.Apply various properties of elimination methods to solve a problem	12
5	Difference Operators: Newton's interpolation formula – Lagrange's interpolation formula – Divide difference interpolation – Inverse interpolation.	Students can 1.Construct new data point through interpolation 2.Acquire the various techniques such as Newton's Interpolation, Lagrange's Interpolation etc 3.Comprehend the Inverse Interpolation	12

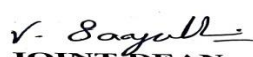
Text Books

S.No	Title of the Book	Author/s	Year(Edn)	Publisher/s
1	Operations Research	KantiSwarup, P.K. Gupta and Man Mohan	2010(1)	Sultan Chand & Sons
2	Numerical Analysis	S. Arumugam, A. ThangapandiIssac and A. Somasundaram	2012(1)	Scitech Publications Pvt.Ltd
3	Problem in Operation Research (principles & Solution)	D S Hira, Prem Kumar Gupta	2012(1)	S.chand

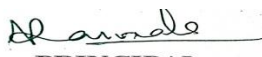
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Operations Research	G.Srinivasan	2012(2)	Prentice Hall India Pvt., Limited
2	Numerical Analysis	Vasishtha	2011(1)	Krishna Prakashan Media (P) Ltd


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UIT – BOS - Sri Sarada College for Women (Autonomous), Tirunelveli -627011
SEMESTER IV

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITSL41	Course Title: Android Programming Practical
Category: SB-Major	Credits:4Hours:2+4

Objectives

1. Design and develop user interface for the Android platform.
2. Save state information across important operating system events.
3. To demonstrate the skills of using Android software development tools.
4. Ability to deploy software to mobile device.

S.NO	EXERCISES
1	Develop an application that uses GUI components, Font and Colors
2	Develop an application that uses Layout Managers and event listeners.
3	Develop a Calculator application.
4	Write an application that draws basic graphical primitives on the screen.
5	Develop a Android Application that creates Alarm Clock
6	Write an android program to implement activity life cycle using toast messages with proper positioning Layouts
7	Write an android program to print the set of alphabets/strings in a linear layout and in table layout.
8	Write an android program to demonstrate DatePickerDialog, TimePickerDialog with current date and current running time.
9	Write an android program to demonstrate a Menu with name File with New and Open as menu items. Give toast messages on click of each menu item
10	Write an android program to switch from one activity to another using Intent. When the activity is changed disable the use of back button to avoid going to previous activity Views
11	Write an android program to implement the following operations using SQLite Database. Create the SQLite Database Object. Execute the CRUD Operations required for the application Close the database
12	Write an android program to demonstrate scroll view and list view. (List view should array adapter. The adapter should use array list of companies. Each item in the list view should have company name, company address and its annual revenue.)

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UIT – BOS - Sri Sarada College for Women (Autonomous), Tirunelveli -627011
SEMESTER IV

Programme: B.Sc	Subject: Information Technology
Course Code: 19UNIT4A	Course Title: Basic Programming Design
Category: Non-Major Elective	Credits: 2 Hours:2

Objectives

1. To acquire basic knowledge about problem solving steps
2. To learn about Generation of Programming languages

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Algorithms, Flowcharts, Types of Programming Languages, Selection of Programming Languages, Program Writing Debugging.	Students can 1.Acquire the basic knowledge about problem solving steps 2.Understand about program writing and debugging	6
2	Flow Charts: Elementary Concepts–Introduction, Kinds of flow charts, symbols used in flow charts, Advantages of flow charts, examples, constants and variables-Types of Variables.	Students can earn about how to use the flowchart in problem solving 2.Identify the importance of flowchart 3.Learn about the difference between constants and variables	6
3	Flow Charting Simple Computation : Introduction, illustrating examples_ Greater of two number ,Celsius to Fahrenheit, Sum of first N positive numbers- Factorial of numbers- sum of cube of N numbers - conclusion.	Students can 1.Learn about how to draw a flowchart for simple mathematical problem 2.Learnabout of how the flowchart is computed 3.Apply their knowledge in real time problem solving	6
4	Subscripted Variables: Introduction, basic concepts of subscripted variables, one dimensional array, illustrating examples, Multiplication of two Arrays- conclusion.	Students can 1.Understand the Basic concepts about subscripted variables 2.Know how to use subscripted variable in Arrays 3.Learn about two dimensional array	6
5	Multidimensional Arrays: Introduction, definitions, matrix operations, illustrating examples, beyond two dimensions, conclusion Introduction to File Structure: Introduction, Concept of data files, Types of Data Files, File Organization methods, File Processing activities, Conclusion.	Students can 1. Learn about multidimensional array 2.Know about File structures 3.Differentiate sequential and random file organization	6

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Basic Programming Design	D.S. Arul Selvan, A.A RegiessonSylum	2005(1)	Shalom Publications, Green st, Nagercoil
2	The Art of Programming Through Flowcharts & Algorithms	Anil BikasChaudhuri	2005(1)	Firewall Media

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Insight into Flowcharting	Raj K.Jain	2002(1)	S. Chand Limited
2	Classic Flowcharts	SJ Withers	2017 (K)	ASIN: B073XMFH3Q

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UIT – BOS - Sri Sarada College for Women (Autonomous), Tirunelveli - 627011
SEMESTER III

Programme: B.Sc	Subject: Information Technology
Course Code: 19UNIT4B	Course Title: Web Graphic Design
Category: Non-Major Elective	Credits: 2 Hours:2

Objectives

1. Utilize several Flash tools and tactics learned throughout the course to produce an interactive flash N based website.
2. Demonstrate the ability to effectively utilize the timeline and motion tween affects to produce animation

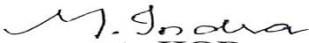
Unit	Detailed Syllabus	Outcomes	Hours
1	FLASH How flash works – Introducing the Flash Workspace - Panels – Tools – Timeline – Frames – Concept of frames – Scenes in Flash – Layers in Flash – Testing a flash movie – Publishing a flash movie	Student can 1. Learn animation frame by frame 2. Understand the key frames and Timeline. 3. Able to create a simple flash movie	6
2	FLASH Working with Color – Color Swatches Panel - Color Mixer Panel - Symbols – Creating Symbols and instances – Creating a button – Editing symbols – Modifying the instance of a symbol – Library – Using the library – Using the Common Library.	Student can 1.Able to Custom colors using Color Swatches panel. 2. Able to Create action script using Common Library functions	6
3	FLASH Animation – Working with Time line effects – Using the Explode Timeline Effect - Frame by Frame Animation Technique – Tweening: Motion and shape Tweening – Creating masking effects – Action Scripts – Programming concept in Action Script – Movie clips	Students can 1. Learn how to control the time that elapse between the key frames . 2. Able to design a simple Tweening. 3. Motion and Shape Tweening.	6
4	DREAMWEAVER Working with Layers – Behavior – Working with Templates – Working with HTML – Adding video and media to Web Pages – Assets, Library and History Panel	Student can 1. Learn to add various media into a webpage 2. Able to work with different templates. 3. Work with diverse Layers and its Behavior	6
5	DREAMWEAVER Insert a picture – Insert a page – How will insert a background picture – Creating lists – Creating a behavior – Customizing Dreamweaver	Student Can 1. Able to insert multiple image into a web page 2. Able to design a simple web site	6

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Flash 8 in Simple steps	Shalini Gupta and Adity Gupta	2006(1)	Dreamtech press
2.	Dreamweaver4 Bible	Joseph W. Lowery	2001(1)	Wiely
3	Comdex Multimedia And Web Design	Vikas Gupta	2007(1)	Dreamtech Press

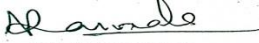
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Dreamweaver4 From A to Z	Heather Williamson	2005(1)	Laxmi Publications
2.	Flash 8 a Beginner's Guide	Bonnie Blake , Doug Sahlin	2006(1)	Dreamtech Press


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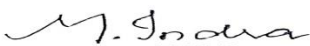
UIT – BOS - Sri Sarada College for Women (Autonomous), Tirunelveli - 627011
SEMESTER IV

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITCL41	Course Title: Java Programming Practical
Category: Core Lab - 4	Credits:3 Hours:6

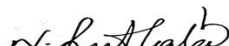
Objectives

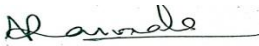
- 1. To understand how to use Java APIs for program development.
- 2. To learn how to extend Java classes with inheritance and dynamic binding.
- 3. To learn how to use exception handling in Java applications.

S.No	EXERCISES
1	Create a Simple program with your own detail.
2	Use Overload i) Method ii) Constructor
3	Create a Program for object as parameters and returning objects.
4	Create a program with abstract class.
5	Create a program using Multilevel Inheritance.
6	Develop a Program using Interface.
7	Create and Import Package (Minimum Three Classes)
8	Create your own exception for Employees. (constraints 1. Age>18 and <58 2. Dept No 10 20 30 40)
9	Suspend, Resume and Stop Threads (Minimum 3 Threads)
10	Read and Write the content of a file using I/O Packages.
11	Display a Simple Banner Applet.
12	Event Handling Mechanism for Keyboard and Mouse.
13	Create a Login form.
14	Create a Program for Moving Ball (Start and Stop)
15	Create a Simple Java Databasewith a single table having 4 fields


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SEMESTER IV

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITAL41	Course Title: Linux Practical
Category: Allied Lab-4	Credits:2Hours:4

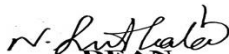
Objectives

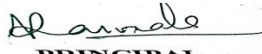
- 1. To understand the basic set of commands and utilities in Linux systems.
- 2. To learn the important Linux library functions and system calls.

S.NO	EXERCISES
1	Use any text editor in Linux (say vi) to enter a C program to find the largest of three numbers, compile using gcc and display the output.
2	Use any text editor in Linux (say vi) to enter a C program to find the factorial of a given number, compile using gcc and display the output.
3	Linux commands A)ls, mkdir, rmdir, cd, pwd, find, du(Directory oriented) B) cat, cp, rm, mv, wc (File oriented) C)ps, kill, batch, grep(Process oriented) D) write, mail, wall (Communication oriented)
4	Linux commands A) date, who, who am i, man, cal, echo, bc(General purpose) B) Pipe, Filter
5	Write a shell script to display date in the mm/dd/yy format, time, username and current directory.
6	Write a shell script to find the sum of digits of a given number.
7	Write a program to generate Fibonacci series.
8	Write a program to check whether given string is palindrome or not
9	Write a shell script to find factorial of a given integer.
10	Write a shell script to generate mark sheet of a student. Take 3 subjects, calculate and display total marks, percentage and Class obtained by the student.


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SEMESTER IV

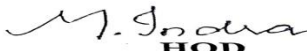
Programme: B.Sc	Subject: Information Technology
Course Code: 19UDLT41	Course Title: Digital Learning Tools
Category: Common	Credits: 1

Objectives

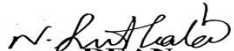
- 1. Understand the need and significance of E-Content in the context of Digital Learning Initiative.
- 2. Develop deeper insights into the dynamics of E-content creation
- 3. Produce an e-Module on some concept in their discipline.

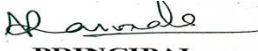
Unit	Detailed Syllabus
1	E-content- Digital Literacy - Digital Literacy: E- Content- MOOCs Revolution- Differences Between MOOCs and Face to Face Learning- Reformation of Education- Opportunities, Impacts and Challenges
2	E-Content Development- Basics of Static E-Content Development -Information Collection Strategies - Life cycle of E-Content development -Publishing e-content and Pedagogical Issues – Plagiarism
3	MOOCs : MOOCs The Skill Gap Fillers - Design Principles- Learning Object Design- Open Education Resources-Teaching- Learning Approaches and strategies
4	Literary Discussion-Recognizing Learner Autonomy-Theoretical Framework of e-Learning- Challenges of MOOC Players- Case Study-Case Study 2
5	Integrating e- learning- Continuous Proficiency Development-E-learning Standards- Issues in Indian Context for e-content development

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	E-Learning Fundamentals: A PRACTICAL GUIDE	Diane Elkins	2015	Lean Publishing
2.	Handbook of Learning Technology	Nick Rushby	2015	Wiley Education


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UIT – BOS - Sri Sarada College for Women (Autonomous), Tirunelveli – 627011
SEMESTER V

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITC51	Course Title: Software Engineering
Category: Core -7	Credits:4Hours:4

Objectives

- 1. To understand the importance of Software Development Life Cycle and various process models.
- 2. To design and implement software components as per the requirements of various stakeholders by applying the Software Engineering principles.
- 3. To discover the inconsistencies at early stages of software development.

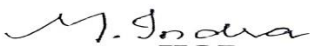
Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction:- Software Engineering Discipline- Evolution And Impact – Program versus Product – Emergence of Software Engineering-Changes in Software Development Practices- Computer System Engineering, Software Life Cycle Models: Use of Life cycle models- Classical Waterfall Model – Iterative Waterfall Model – Prototyping Model – Evolutionary Model –Spiral Model. Software Project Management: Responsibilities of a Software Project Manager – Project Planning-Metrics project size Estimation-Project Estimation Techniques-Risk Management-Software Configuration Management	Students can 1.Apply software engineering principles and techniques in problem solving. 2. Understand and apply the processes involved in SDLC lifecycle. 3.Understand and apply all cost estimation method to their projects.	12
2	Requirements Analysis and Specification:- Requirements Gathering and Analysis – Software Requirements Specifications (SRS)-Formal System Development Techniques . Software Design: Characteristics of a good software Design - Cohesion and Coupling - Neat Arrangement - Software Design approaches.	Students can 1.Understand and apply software requirements and the SRS documents to their projects. 2.Analyse the requirement from customer for software development.	12
3	Function-Oriented Software Design: Overview of SA/SD Methodology – Structured Analysis – Data Flow Diagrams(DFDs) – Structured Design – Detailed Design- Design Review. Object Modeling Using UML: Overview of Object oriented concepts-UML -UML Diagrams -Use Case Model - Class Diagrams - Interaction Diagrams -Activity Diagrams - State Chart Diagram	Students can 1. Draw a use case diagram for a project 2.Assist in creating a Design specification Documentation for a project. 3. Apply the design concept to develop user friendly system.	12
4	User Interface Design:- Characteristics of a good User Interface - Basic Concepts – Types of User Interfaces – Components based GUI Development. Coding and Testing:- Coding – Testing- Unit Testing – Black-box Testing– White-box Testing- Debugging -Integration Testing - System Testing-Statistical Testing.	Students can 1. Understand and apply User interface for a software. 2. Understand and apply testing method to attain a quality product. 3. classify different testing strategies.	12
5	Software Quality : Software Quality – Software Quality Management System – ISO 9000. Computer Aided Software Engineering: CASE Environment - CASE support in software Life Cycle - Characteristics of CASE Tools -Architecture of a CASE Environment. Software Maintenance: Characteristics of Software Maintenance- Software Reverse Engineering- Software Maintenance Process Models -Estimation of Maintenance Cost . Software Reuse: Issue in any Reuse Program - Reuse Approach.	Students can 1. generate project schedule and can construct, design and develop network diagram for different type of projects. 2. Analyze, design, verify, validate, implement, apply and maintain software systems. 3. work in one or more significant application domain.	12

Text Books

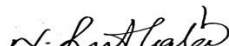
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Fundamentals of Software Engineering	Rajiv mall	2014(4)	Prentice Hall India Pvt., Limited
2	Software Engineering A Practitioner approach	Roger S. Pressman	2005(6)	McGraw - Hill Education
3	Software Engineering	Ian Sommerville	2010(6)	Pearson Education India

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Software Engineering Concepts	Richard Fairley	2011(5)	McGraw - Hill Education
2	Software Engineering Principles and Practice	Willam.S. Jawadekar	2012(1)	McGraw - Hill Education


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SEMESTER V

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITC52	Course Title: Relational Database Management System
Category: Core -8	Credits:4Hours:4

Objectives

1. To define, manipulate and control data using Structured Query Language (SQL).
2. To enforce database integrity constraints such as Primary key, Foreign keys, Null, Unique
3. To Write both simple and complex SQL queries by utilizing single row and group functions
4. To develop applications using various features of PL/SQL like Database cursors, Functions, Stored Procedures, Packages, and Triggers.

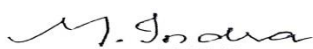
Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Purpose of Database Systems–Data Models–Database Languages–Transaction Management – Storage Management – DBA – Database Users – System Structure. E-R Model – Entities and Entity sets – Relationship Sets – Mapping Constraints – E-R Diagram.	Students can 1. Understand database concepts and its language structures. 2..Understand the E-R model and relational model 3.Understand the role of DB Administrator	12
2	Structure of Relational Databases : Relational Algebra – Tuple Relational Calculus – Domain Relational Calculus – Integrity Constraints – Normalization – Boyce Codd Normal Form – Third Normal Form – Fourth Normal Form – Domain Key Normal Form.	Students can 1. Learn basic relational algebra operators and to express queries using relational algebra. 2. Understand Functional Dependency and Functional Decomposition. 3.Apply various Normalization techniques	12
3	Basic SQL Operations: Creating a Table – Insert – Rollback – Commit – Auto commit– Delete – Update – Select, From, Where and Order by – Single value tests – Single value tests – LIKE – Simple tests against a list of values – Combining Logic – Dropping tables – Dropping a Column – Creating a table from a table – Creating a view – Advanced Sub queries – Outer Joins – Natural and Inner Joins – Union, Intersect & Minus – Synonyms– Indexes–Built in SQL Function	Students can 1.Write SQL queries to create, read, update, and delete relational database data 2. Learn how queries are processed, optimized and evaluated in a DBMS. 3. Understand and apply the built in SQL function in their projects	12
4	Basics of Object: Relational Databases: Objects – Abstract Data Types – Nested tables – Varying arrays – Large Objects – References Object Views – Naming conventions for objects – structure of an object – Users, Roles and Privilege Moving to another user – Create Synonym – Granting privileges to a role – Granting a role to another role– Adding Password to a role – Removing password from a role – Enabling & Disabling Roles – Revoking Privilege from a role – Drop role.	Students can 1.Approve a role for user to grant permission to database 2. Understand and apply the various objects of oracle in their work. 3.Solve how to revoke permission from user to database	12
5	An Introduction to PL/SQL : PL/SQL Overview – Declaration section – Executable commands section – Exception handling Section – Triggers –Row Level, Statement Level ,Before & After , Instead of , Database Level Triggers – Enabling & Disabling Triggers – Replacing & Dropping Triggers – Procedures, Functions & Packages : Syntax – Compile – Replace – Drop Procedure, Functions& Packages – Cursor Management	Students can 1. Perform PL/SQL programming using concept of Cursor Management, Error Handling, Package and Triggers 2. Design modular applications using packages 3. Write efficient PL/SQL programs to access Oracle database.	12

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Database System Concepts	Abraham Silberschatz, Henry F.Korth, S.Sudarshan	2010(6)	McGraw Hill Education
2	ORACLE 9i - The Complete Reference	Kevin Loney, George Koch And the Experts at TUSC	2002(1)	McGraw Hill Education
3	Fundamentals of Database Systems	RamezElmasri, Shankant B. Navathe	2010(6)	Pearson Education India

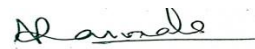
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Database Management Systems	R.Pannerselvam	2003(2)	Prentice Hall India Pvt., Limited
2	Database Systems Using Oracle: A Simplified Guide to SQL and PL/SQL	Nilesh Shah	2014(2)	Prentice Hall India Pvt., Limited


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UIT – BOS - Sri Sarada College for Women (Autonomous), Tirunelveli - 627011
SEMESTER V

Programme: B.Sc	Subject: B.Sc Information Technology
Course Code: 19UITC53	Course Title: Wireless Application Protocol
Category: Core - 9	Credits: 4Hours:4

Objectives

1. To study about WAP architecture.
2. To learn about WAP gateways.
3. To know about WML decks.

Unit	Detailed Syllabus	Outcomes	Hours
1	A brief History of WAP: Origins – The WAP Forum – Forum Members – Why WAP? The Great Convergence – WAP Device Characteristics – The Need For WAP - An Overview of WAP: WAP in Action – Web Transaction Model – WAP Transaction Model – WAP Architecture – A closer Look at WAE.	Students can 1.Analyse the contribution of Wireless Communication networks to overall technological growth 2. Account the architecture of WAP and its transaction. 3. Understand and apply Wireless Application Protocol used for wireless and mobile access using different transport systems.	12
2	The WAP Application Environment : The Microbrowser – WML – WML Features –WML Script – WAP Client Software, Hardware, and Websites : OEM Microbrowser –Consumer Microbrowser – WAP Devices – Consumer WAP Sites	Students can 1. Acquire the knowledge about wireless markup language script. 2. Account the various micro browsers for WAP application environment. 3. Understand and apply the customer based WAP sites available on internet.	12
3	WAP Gateways: A Note on Terminology – WAP Gateway Services – Security – WAP's Security – Some WAP Profiles: exo – net – Main Freight – Sky City Hotels – A consumer Profile – What WAP Does well – Implementation an Enterprise WAP Strategy– The Future of WAP : Problems with WAP – Solving These Problems – The Next Generation.	Students can 1. Account how intermediate access request is done by a WAP gateway. 2. Acquire the knowledge of WAP profiles such as EXO net, Main Freight, etc. 3.Analyze future problems of WAP gateway.	12
4	Document Status: References – Definitions and Abbreviations – WML and URLs – WML Character Set – WML Syntax – Core WML Data Types – Events and Navigation – The State Model.	Students can 1. Understand and apply WML data types in example. 2. Assist in creating how the XML event can be fired.	12
5	The Structure of WML Decks: User Agent Semantics – WML Reference Information – A Compact Binary Representation of WML – Static Conformance Statement. AD -HOC Network and Bluetooth Technology - Intelligent Mobile Communication System-Fourth Generation mobile Communication System	Students can 1.Account about WML Reference Information 2. Expand Compact binary representation of WML 3.Identify the Ad-hoc network and blue tooth technology	12

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	The Wireless Application Protocol	Steve Mann, Scott Sbihli	2000(1)	John Wiley & Sons
2	WAP : A Beginner's Guide	Dale Bulbrook	2001(1)	McGraw-Hill Osborne Media
3	Wireless and Mobile Communication	Palanivelu.T.G	2008(1)	Prentice Hall India Pvt., Limited

Reference Book

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	The Wireless Application Protocol	SandeepSinghal, Thomas Bridgman, LalithaSuryanarayana, Daniel Mauney	2007(3)	Addison-Wesley


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UIT – BOS - Sri Sarada College for Women (Autonomous), Tirunelveli - 627011
SEMESTER V

Programme: B.Sc	Subject: Information Technology
Course code: 19UITE51	Course Title: Management Information System
Category: Major Elective -I	Credits: 4Hours:4

Objectives

1. To acquire data from multiple online systems, analyzes the information and reports data to aid in management decision-making
2. To deliver cost effective information and communication Technology (ICT) solutions.
3. To effectively communicate strategic alternatives to facilitate decision making.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction of MIS: Definition of MIS – Systems approach – meaning and objectives of MIS –Disadvantages of Information Systems- Approaches of MIS Development -MIS and use of computer – limitations of MIS.	Students can 1. Understand and apply strategic planning in different functional areas of management 2. Analyze different characteristics of MIS 3. Student can account various approaches of MIS	12
2	Information System for Decision making : Transaction Processing System -MIS - Intelligent Support System Computer Software for Information systems: Introduction -Programming Languages– system software – Application software – Software Trends.	Students can 1. Analyze Intelligent support system. 2. Account the generation of language. 3. Understand and apply the steps to create application software.	12
3	Information system in Business: Introduction – Functional areas of Business – marketing information system -Quality Information System- Financial and Accounting Information Systems – Human Resource Information System-Geographical Information System - Cross Functional Systems	Students can 1. Understand some do's and don'ts followed by information specialist in an enterprise wide quality effort 2. Gain knowledge about research and development information system 3. Understand and apply the guidelines for selection of an HRIS	12
4	Application of Information Technology in Business: Introduction of E-Commerce- Electronic Business- Electronic cash over the Internet- Mobile Commerce, E-Governance, E-enterprises, From PC to the Web.	Students can 1. Accomplish practical application of e-commerce in banks, engineering industries etc 2. Understand and apply mobile commerce in business 3. Account about various models of E-Governance	12
5	Information Security, Ethics and Society : Challenges of Securing Computer systems – Types of Security Breaches- Security Controls -Auditing Information Systems- Cyber Laws and IT Act 2000 – Ethical and Social Dimensions of Information Technology	Students can 1. Know about various cyber laws and IT act 2000 2. Understand and apply various security controls 3. Understand the Auditing Information System.	12

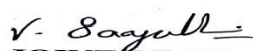
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Management Information System	A.K. Gupta	2003(1)	S. Chand &Company
2	Management Information System	Dr. S.P. Rajagopalan	2012(2)	Margham Publications
3	Management Information Systems	James A O'Brien, George M Marakas, Ramesh Behl	2009(9)	McGraw Hill Education

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Management Information System, Managerial Perspectives	D.P. Goyal	2014(4)	Vikas Publishing House
2	Management Information and Control System	L.M.Prasad , Usha Prasad	2012(1)	Sultan Chand & Sons


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UIT – BOS - Sri Sarada College for Women (Autonomous), Tirunelveli - 627011
SEMESTER V

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITE52	Course Title: E-Commerce
Category: Major Elective -I	Credits: 4Hours:4

Objectives

1. To impart the fundamental concepts of E-Commerce.
2. To study the traditional transactions & E-Payment System.
3. To enable the students to develop Cyber cash model of security

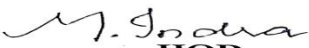
Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction to E-Commerce : Networks – Transactions – Commercial Transactions – Why use E – Commerce – Internet and other Novelties – Advantages of E – Commerce – Electronic Transactions Today - World Wide Web.	Students can 1. Understand the nature and current trends in E-commerce. 2. Recognize the business impact and potential of E-commerce. 3. Understand the importance of advertising and marketing in the field of E-commerce.	12
2	Security Technologies : Why Internet Is Unsecure – Internet Security Holes – Cryptography : Objectives – Codes and Ciphers – Breaking Encryption Schemes – DES Cryptographic Applications – Digital Signature – Non repudiation an Message Integrity	Students can 1. Analyse Cryptography Techniques. 2. Understand and apply Internet Security. 3. Understand and apply various algorithms of crvptogranhy.	12
3	Traditional Transactions : Updating – Offline and Online Transaction – Secure Web Servers – Required Facilities – Digital Currencies and Payment Schemes – Protocol for the Public Transport – Security Protocols – Credit Card Business Basics.	Students can 1. Describe the process of Selling and Marketing on web. 2. Know how virtual Currencies managed. 3. Understand how the Quicker and lower cost the transaction processing	12
4	Online Commerce Options : Functions and Features – Payment Systems: Electronic, Digital and Virtual Internet Payment Schemes – Account Setup and Costs – Virtual Transaction Process – Info Haus – Security Considerations.	Students can 1. Have a knowledge about web based version of credit card swipe device 2. Acquires how to protect e-commerce from fraud, hacking and copycats 3. Know the importance of safe environment for online customers.	12
5	Cyber Cash : Model – Security – Customer Protection – Client Application – Selling through Cyber Cash – Servers and Commercial Environments – Payment Methods – Server Market Orientation – Netscape Commerce Server – Microsoft Internet – Servers– Smart Cards.	Students can 1. Read of ecommerce merchant to connect them through internet 2. Identify how to handle with Netscape Commerce server in multi-platform 3. Prioritizes and identifies the needs of customer in business	12

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Electronic Commerce	Pete Loshin John Vacca	2004(4)	Laxmi Publications
2	E-Commerce	Kenneth C.LaudenCarel GuercioTraver	2016(10)	Pearson Education India
3	E-Commerce: Framework, Technologies, and Applications	BharathBaskar	2013 (4)	McGraw Hill Education

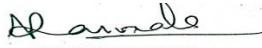
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Electronic Commerce: A Manager's Guide Addison	Kalakota, Ravi, and Andrew B. Whinston	2000(1)	Addison Wesley
2	E-Commerce	Laudon	2017(13)	Pearson


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SEMESTER V

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITE53	Course Title: Enterprise Resource Planning
Category: Major Elective -I	Credits: 4Hours:4

Objectives

- 1. To analyze the business process and ERP system.
- 2. To know about accounting ERP.
- 3. To learn about ERP process modeling

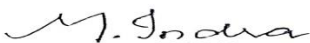
Unit	Detailed Syllabus	Outcomes	Hours
1	Business function and Business process : Functional areas and Business Process – Functional area of operations – Business Process – Marketing Sales – Supply Chain management – Accounting and Finance – Human Resource – Functional areas of Information System – The development of ERP System SAP R/3 – New directions in ERP – Significance and benefits of ERP software and systems.	Students can 1. Understand the basic concepts of ERP 2. Discuss the benefits of ERP 3. Acquire the knowledge of supply chain management	12
2	Marketing information system and sales order process in ERP: sales and Distribution in ERP Pre sales activities – sales order processing – inventory sourcing – Delivery – benefits of CRM.	Students can 1. Understand ERP presale activities in sales and execution 2. Acquired the knowledge of inventory sourcing 3. Understand the benefits of CRM	12
3	Production and supply chain management information system: Production overview – The Production planning process – The SAP ERP Approach to production planning – Sales forecasting – Sales and Operation Planning – Demand Management – Material requirement planning in SAP ERP – ERP and supplier – supply chain.	Students can 1. Accomplish the SAP ERP planning approach system 2. Well-read of Demand management 3. have the knowledge of Production planning operation	12
4	Accounting in ERP: Accounting Activities – using ERP for accounting Information – Operational decision making problem – Credit management – Industrial credit management in SAP ERP Product profitability analysis – Management reporting with ERP System – Document flow for customer Service.	Students can 1. Know about the Basic accounting activities 2. Understand the basic steps in industrial credit management system 3. Acquire the knowledge of SAP ERP product profitability analysis	12
5	Human resource process in ERP: HR with ERP – Advance HR features – Time Management – Payroll – Travel Management – Training and Development – Management by objectives – ERP Process modeling- Process Modeling - Process Improvement – Implementing ERP System.	Students can 1. Understand about Human Resources process are done in ERP 2. Comprehend the knowledge of various management skills such as Time, Payroll, and Travel etc 3. Acquires the knowledge about the steps in process modeling in ERP	12

Text Books

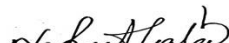
S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Enterprise Resource Planning	Ellen Monk And Bret Wagner	2008(3)	Cengage Learning
2	Modern ERP: Select, Implement, and Use Today's Advanced Business Systems	Marianne Bradford PH.D	2014(1)	Lulu.com
3	Enterprise Resource Planning	Mary Sumner	2004(4)	Pearson

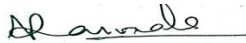
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Concepts in Enterprise Resource Planning	Ellen Monk, Bret Wagner	2011(4)	Cengage Learning Custom Publishing
2	Enterprise Resource Planning: Concepts And Practice	Vinod Kumar Venkitakrishnan, N.K. Garg	2009(2)	Prentice-Hall of India Pvt.Ltd


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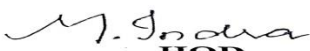
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SEMESTER V

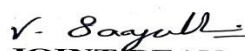
Programme: B.Sc	Subject: Information Technology
Course Code: 19UITCL51	Course Title: Relational Database Management System Practical
Category: Core Lab-5	Credits:3 Hours:6

Objectives

- 1.To have a broad understanding of database concepts and database management system software
- 2. To write SQL commands to create tables and indexes, insert/update/delete data, and query data in a relational DBMS.
- 3. To solve Database problems using SQL and PL/SQL including stored procedure, functions, Cursors, Packages

S.No	EXERCISES
1	Create a simple table and write three queries to process a table.
2	Demonstrate query processing using aggregate operators.
3	Write oracle code for demonstrating the correlated sub queries.
4	Write oracle code to create employee records and delete the retired employees and store it on to another table with same structure.
5	Create a course table and create a procedure that displays the instructor details, class details and student details of a particular table which the user inputs.
6	Write a database trigger before insert for each row on the course table not allowing transactions on Sundays and Saturdays.
7	Create a package that contains overloaded functions for i. Adding five integers ii. Subtracting two integers iii. Multiplying three integers
8	Write a PL/SQL block to increase the salary by 10% if the salary is > 2500 and < 3000.
9	Write a PL/SQL block to display the names of those employee getting salary > 3000. Create and insert records into the following tables. (Insert minimum 10 records in each table).
10	Create Student grade information table in PL/SQL.
11	Write a PL/SQL program to print a multiplication Table
12	Write a PL/SQL program to check whether the given string is palindrome or not
13	Write a PL/SQL program to find factorial of number using function and procedure


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SEMESTER V

Programme: B.Sc	Subject: Information Technology
Course code: 19UITCEP51	Course Title: Information Technology for Competitive Examinations & Project
Category: Major Project	Credits: 6 Hours:6

Information Technology for Competitive Examinations

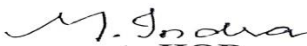
Objectives:

- 1. Allow students to utilizes problem solving skills
- 2. To provide detailed knowledge about core subjects

Unit	Detailed Syllabus
1	Discrete Structures and Optimization Mathematical Logic: Propositional and Predicate Logic, Propositional Equivalences, Normal Forms, Predicates and Quantifiers, Nested Quantifiers, Rules of Inference.
2	Sets and Relations: Set Operations, Representation and Properties of Relations, Equivalence Relations, Partially Ordering. Counting, Mathematical Induction and Discrete Probability: Basics of Counting, Pigeonhole Principle, Permutations and Combination
3	Basic Computer Organization and Design: Stored Program Organization and Instruction Codes, Computer Registers, Computer Instructions, Timing and Control, Instruction Cycle, Memory-Reference Instructions, Input-Output, Interrupt. Programming the Basic Computer: Machine Language, Assembly Language, Assembler, Program Loops, Subroutines, Input-Output Programming.
4	Normalization for Relational Databases: Functional Dependencies and Normalization; Algorithms for Query Processing and Optimization; Transaction Processing, Concurrency Control Techniques, Database Recovery Techniques, Object and Object-Relational Databases; Database Security and Authorization.
5	Memory Management: Contiguous Memory Allocation, Swapping, Paging, Segmentation, Demand Paging, Page Replacement, Allocation of Frames, Thrashing, Memory-Mapped Files. Storage Management: Mass-Storage Structure, Disk Structure, Scheduling and Management, RAID Structure.

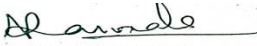
Reference Book

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Trueman's UGC NET Computer Science and Applications	Sanjay Singhal and Sameer Mishra	2018	Danika Publishing Company


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UIT – BOS - Sri Sarada College for Women (Autonomous), Tirunelveli - 627011
SEMESTER VI

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITC61	Course Title: Machine Learning using Python
Category: Core -10	Credits: 4Hours:4

Objectives

- 1. To introduce students to the basic concepts and techniques of Machine Learning.
- 2. To develop skills of using recent machine learning software for solving practical problems.
- 3. To gain experience of doing independent study and research.

Unit	Detailed Syllabus	Outcomes	Hours
1	Machine Learning :Introduction – Working of Machine Learning –Features of Machine learning- Need for Machine Learning – Classification of Machine Learning –History of Machine Learning – Application of Machine Learning – Machine Learning Life Cycle – AI versus Machine Learning	Students can 1. Recognize the characteristics of machine learning that make it useful to real-world problems. 2.Learn about evolution and various applications of machine learning. 3. Understand different phases of Data science	12
2	Data Preprocessing and Classification : Data Set - Types of data in Dataset - Popular source for Machine Learning datasets - Data Preprocessing – Steps of Data Preprocessing - Supervised Machine Learning –Unsupervised Machine learning - Supervised Vs Unsupervised Learning	Students can 1. Characterize machine learning algorithms as supervised and unsupervised. 2. Convert raw set into clean data set. 3. Identify and correctly handle the missing values.	12
3	Supervised Learning: Types of Supervised Learning - Regression Analysis – Types of Regression - Linear Regression - Backward Elimination - Logistic Regression	Students can 1. Understand the basic underlying concepts for supervised discriminative and generative learning. 2. Acquire the knowledge of how to predict a dependent variable.	12
4	Supervised Learning: Classification – Types of Classification Algorithms - K-Nearest Neighbor(KNN) Algorithm – Support Vector Machine – Naive Bayes Classifier – Decision Tree	Students can 1.Understand and apply algorithms for learning Bayesian networks. 2. Learnt to solve classification and regression problems. 3.Understand and apply different types of classification algorithms	12
5	Python: Python Program – Python class and object – Python Tkinter – Python online Editors - Python mySQL -Numpy - Matplotlib	Students can 1.Express different Decision Making statements and Functions 2. Design GUI Applications in Python. 3.Evaluate different database operations using mySQL	12

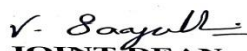
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Introduction to Machine Learning with Python	Andreas C.Muller, Sarah Guildo	2016(1)	O’Reily
2	Machine Learning: A probabilistic perspective	kevin P. Murphy	2016(1)	The MIT Press
3	Understanding Machine Learning: From Theory to Algorithms	ShaiShalev-Shwartz	2014(1)	Cambridge University Press

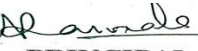
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Business Intelligence: A Managerial Perspective on Analytics	Ramesh Sharda, DursunDelon, EfraimTurbal,David King	2014(1)	Pearson Education India
2	Pattern Recognition and Machine Learning,	Christopher M. Bishop	2006(1)	Springer


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UIT – BOS - Sri Sarada College for Women (Autonomous), Tirunelveli - 627011
SEMESTER VI

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITC62	Course Title: Web Programming
Category: Core -11	Credits: 2Hours:2

Objectives

1. To learn the concepts, terminologies and technologies used in web programming.
2. To know about the functions of XHTML.
3. To make the students to get familiarized with java script & server side programming.

Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction to Internet and World Wide Web :Components to Enable Internet Access – Features of Internet Explorer and Firefox – Browser Setting – Web 2.0. – Search Engines – Content Networks – User Generated Content – Blogging – Social Networking and Media Tagging – RIA – Web Services, Mashups, Widgets and Gadgets – Location Based Services – Web 2.0. Models.	Students can 1.Learn about basics of Internet and web browsers 2. Know about Different types of websites according to creator’s need 3. Understand web models 2.0	6
2	Introduction to XHTML :Structure of XHTML Document – Headings – Links – Images – Lists – Tables – Forms – Frames – Internal Linking – Web Page Design – Introduction to CSS – Inline Styles – Embedded Style Sheets – Conflicting Styles – Liking External Style Sheets – Positioning Elements – Backgrounds – Element Dimensions – Box Model and Text Flow – Media Types – Drop Down Menu – User Style Sheets – Sample Web Applications.	Students can 1.Understand the XHTML 2.Gain the knowledge about Cascade Style sheet 3.know of sample web programs	6
3	Introduction to Java Script: Structure of Java Script – Sample Programs – Memory Concepts – Operators – I/O Structures – Control Structures : Selection and Multiple Selection Structures – Repetition Structures – break and continue structures – Functions : Programmer Defined Functions – Function Definition – Scope Rules – Global Functions – Recursion – Example Programs	Students can 1.Well read about client side scripting language 2.Learn about the various statements of java script 3.Learn how to use functions in JavaScript	6
4	Arrays : Declaring and Allocating Arrays – Passing Arrays to Functions – Multidimensional Arrays – Objects : Object Technology Concepts – Various JavaScript Objects – DOM Nodes and Trees – DOM Collections – Events and Event Models – XML Basics – XML Namespaces – DTD – XML Schema Documents – XML Vocabularies – XSL – RSS – ActiveX Controls Sample Web Applications	Students can 1.Learn about Document Object Model 2.Acquires the skill on XML programs 3.Accomplish about how to use Active X Controls in Web applications	6
5	Server Side Programming: Web Servers : HTTP Transactions – IIS and Apache Servers – Databases : MySQL – ADO.NET Object Model – JDBC – PHP : PHP Basics – Form Processing – Dynamic Content – ASP.NET 2.0. Introduction – Developing Sample Web Application – Web Controls – Session Tracking – Case Studies.	Students can 1.know about Server side programming 2.Learn about how to create dynamic and Interactive web pages 3.Gain the Knowledge on Databases in web applications	6

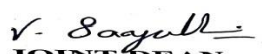
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Internet & World Wide Web- How to Program	Paul J.Deitel, Harvey M.Deitel	2009(4)	Pearson Education India
2	Mastering JavaScript	James Jaworski	2001(2)	SybexInc.,U.S
3	Web Enable Commercial Application Development Using HTML, DHTML, JavaScript, Perl CGI	Bayross	2005(4)	BPB Publications

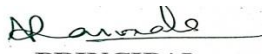
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Complete Reference HTML	T. A Powell	2000(3)	Mcgraw-Hill Osborne Media
2	Mastering HTML, CSS & JavaScript Web	Laura Lemay, RafeColburn , Jennifer Kyrnin	2016(1)	BPB Publications


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UIT – BOS - Sri Sarada College for Women (Autonomous), Tirunelveli – 627011
SEMESTER VI

Programme:B.Sc	Subject: Information Technology
Course Code: 19UITC63	Course Title:.NET Programming
Category:Core-12	Credits:2 Hours:2

Objectives

1. To understand the development and deployment cycles of ASP.NET applications.
2. To utilize the .NET framework to build distributed enterprise applications.
3. To develop ASP.NET Web Services, secure web services, and .NET remoting applications.
4. To develop web applications using a combination of client-side and server-side technologies.

Units	Detailed Syllabus	Outcomes	Hours
1	The .NET Frame Work: Learning the .NET Languages–Introduction to ASP.NET and IIS – Types, Objects and Name Spaces – ASP .NET Application – Building ASP.NET Website.	Students can 1. Set up a programming environment for ASP.net programs. 2. Configure an asp.net application 3. Describe the basic structure of a Visual Basic.NET project and use main features of the integrated development environment (IDE)	6
2	Web Form Fundamentals : HTML Controls–Web Controls–Using Visual Studio.NET–Validation Controls–Navigation Controls – Data Controls – Login Controls – CSS – Working with CSS in Web Developer – More Programs.	Students can 1.Create ASP.Net applications using standard .net controls 2. Create ASP.Net applications using Validation Controls 3. Create ASP.Net applications using CSS	6
3	State Management : Session–View–Query String–Cookies–Tracing–Logging–Error Handling – User Controls -Crystal Report	Students can 1. Maintain session and controls related information for user used in multi-user web applications 2. Accomplish how to create reports for an application through crystal report 3. Acquires the knowledge to respond and recover software errors in an application	6
4	ADO.NET : Over View of ADO.NET–ADO.NET Access–Data Binding–Data List–DATA Grid and Repeaters – Working with Data base – Sample Programs-Files, Streams and Email	Students can 1. Connect to data sources and manage them through ADO.NET. 2. Create database driven ASP.NET web applications. 3. Analyse about different directory and file classes	6
5	XML : Using XML–Web Services–Creating Web Services–Using Web Services-Component-Based Programming-Custom Controls– Caching – ASP.NET Security	Students can 1. Well read on Working with XML Documents 2. Creates and utilizes web services for communication between client and server application 3. Understand about the various caching method for particular context	6

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	ASP.NET The complete Reference	Mathew Mac. Donald	2002(1)	Tata McGraw-Hill Education
2	ASP.NET 3.5 in C# and VB	ImarSpanjaars	2008(1)	Wrox
3	Programming ASP.NET Core	Dino Esposito	2018(1)	Microsoft Press

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Learning ASP.NET 3.5	Jesse Liberty, Dan Hurwitz and Brain Mac Donald	2009(2)	O'REILLY Media
2	PRO ASP.NET 3.5 in C#	Matthew Mac Donald, Mario Szpus ta	2008(2)	Apress


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SEMESTER VI

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITC64	Course Title: Data Communications and Networking
Category: Core-13	Credits:4Hours:4

Objectives

1. To learn the concepts, terminologies and technologies used in modern days data communication and computer networking.
2. To understand the functions of different networking layers.
3. To make the students to get familiarized with different protocols and network components.

Unit	Detailed Syllabus	Outcomes	Hours
1	Data Communication: Standard Organizations–Line Configuration–Topology–Transmission Mode – Categories of Networks – Internet Works – The Model – Functions of the Layers. Transmission of Digital Data: Interfaces and Modems – Digital Data Transmission – DTE – DCE Interface – other Interface Standards.	Students can 1. Understand the rudiments of how computers communicate 2. Account the architecture of a number of different networks 3. Student can assist in creating various topologies for computer network	12
2	Transmission Media: Guided Media–Unguided Media–Multiplexing–Many to one/one to Many, Frequency Division Multiplexing (FDM), and Time Division Multiplexing (TDM).	Students can 1. Analyze difference between the various transmission media 2. Understand and apply the methods to multiplex the signals 3. Student can account the different types of multiplexing.	12
3	Error Detection and Correction: Types of Errors–Detection–Redundancy–Vertical Redundancy Check (VRC) – Longitudinal Redundancy Check (LRC) – Cycle Redundancy Check (CRC) – Checksum – Error Correction. – Error Control.	Students can 1. Student can assist to detect errors in the network 2. Understand and apply the methods to Control errors in the network 3. Student can help to correct errors in the network	12
4	Switching: Circuit Switching–Packet Switching–Message Switching–Integrated Services Digital Network (ISDN) – Services –The ISDN Layers – Broadband ISDN – Future of ISDN.	Students can 1. Analyse difference the between various switching techniques 2. Student can account the layers of ISDN 3. Distinguish about the services that are provide by ISDN	12
5	Frame Relay: Introduction – Frame Relay Operation – Frame Relay Layers – Congestion Control -Leaky Bucket Algorithm – Traffic Control. Networking and Internetworking devices – Repeaters – Gateways – Other Devices – Routing Algorithm, Distance Vector Routing Transport Layer-Connection	Students can 1. Student can account variety of networking and interworking devices. 2. Understand and apply the routing algorithm to find the best route of network. 3. Understand and apply the algorithm to control the traffic in network.	12

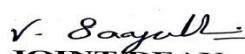
Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Data Communications and Networking	Behrouz A Foruzan	2006(2)	McGraw-Hill Education
2	Introduction to Data Communications and	Wayne Tomain	2005(1)	Pearson Education
3	Computer Networking	James F.Kurose Keith W.Ross	2011(3)	Pearson Education

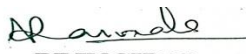
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Computer Networks	Andrew S. Tanenbaum	2006(4)	Prentice Hall of India
2	Data and Computer Communications	William Stallings	2007(3)	Prentice Hall of India


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SEMESTER VI

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITE61	Course Title: Introduction to Cloud Computing
Category: Major Elective -II	Credits: 5 Hours:5

Objectives

- 1. Understand core concepts of cloud computing
- 2. Learn the fundamental concepts about data centers to understand the tradeoffs in powerefficiency and cost.
- 3. Understand use of cloud storage in storage systems.

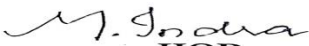
Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Cloud Computing Introduction- From Collaboration to cloud- Working of Cloud Computing- Pros and Cons- Benefits- Developing Cloud Computing Services-Cloud Service Development- Discovering Cloud Services.	Student can 1. Able to understand Cloud Computing 2. Memorize the different Cloud Service and deployment models 3.Use and Examine different Cloud Computing	13
2	Cloud Computing For Everyone Centralizing Email Communications-Cloud Computing for Community-Collaborating on Schedules- Collaborating on Group Projects and Events- Cloud Computing for Corporation- Mapping Schedules - Managing Projects- Presenting on Road	Student can 1. Able to know how to manage the projects 2. Learn about techniques of mapping	13
3	Using Cloud Services Collaborating on Calendars-Schedules and Task Management- Exploring on Line -Scheduling and Planning- Collaborating on Event Management- Collaborating on Contact Management- Collaborating on Project Management- Collaborating on Word Processing- Spreadsheets and Databases.	Student can 1.Understand cloud resources and design scheduling technique. 2.Learn how to Collaborate on Event Management	13
4	Outside The Cloud Evaluating Web Mail Services-Evaluating Instant Messaging- Evaluating Web Conference Tools- Creating Groups on Social Networks- Evaluating on Line Groupware- Collaborating via Blogs and Wikis	Student can 1.Learn about Web mail Services 2.Understand about Blogs and Wikis	13
5	Storing And Sharing Understanding Cloud Storage-Evaluating on Line File Storage- Exploring on Line Book Marking Services- Exploring on Line Photo Editing Applications-Exploring Photo Sharing Communities-Controlling it with Web Based Desktops	Student can 1.Describe the overall organization of data and storage. 2.Explore the knowledge about online photo editing applications in cloud computing	13

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Cloud Computing	Michael Miller	2009(1)	Pearson Education India
2	Cloud Computing	V. K.Pachghare	2016(1)	PHI Learning Pvt Ltd
3	Cloud Computing	Anthony T.Velte, Toby J.Velte, PobertElsenpeter	2010(1)	McGraw Hill Professional

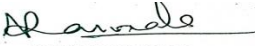
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Cloud Computing Bible	Barrie Sosinsky	2011(1)	Wiley Publishing, Inc.
2	Cloud Computing A Hands-on Approach	ArshdeepBahga, Vijay Madisetti	2014(1)	ArsheepBahga& Vijay Madisetti


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SEMESTER VI

Programme:B.Sc	Subject: Information Technology
Course Code: 19UITE62	Course Title: Computer Graphics
Category: Major Elective- II	Credits:5 Hours:5

Objectives

- 1. To understand the need of developing graphics application
- 2. To learn algorithmic development of graphics primitives like: line, circle, polygon etc.
- 3. To learn the representation and transformation of graphical images and pictures.

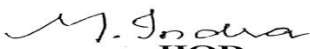
Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction to computer Graphics: Video display devices – Raster scan system – Random Scan System – Interactive input Devices – Graphics software – Output primitives – line drawing algorithms – Line function – circle Generating algorithms.	Students can 1. Understand the basics of computer graphics, different graphics systems and applications of computer graphics 2. Learn the classification and characteristics of Elements of Graphics Systems 3. Learn in depth Graphics Algorithms	13
2	Output Primitives: Attributes of output Primitives – line attributes – Color and Grayscale style – Area filing algorithms – Character attributes Inquiry functions – Two dimensional transformations – Basic transformation – composite transformation – Matrix representation –Other transformations.	Students can 1. Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis 2. Use of geometric transformations on graphics objects and their application in composite form. 3. Interpret the mathematical foundation of the concepts of computer graphics	13
3	Two dimensional viewing: Two – dimensional viewing – window – to view port coordinate transformation – clipping algorithms – interactive input methods – logical classification of input devices – interactive picture construction methods.	Students can 1. Deliberate the classification and characteristics of 2D Graphics. 2. Extract scene with different clipping methods and its transformation to graphics display device	13
4	Three dimensional viewing : Three – dimensional concepts – Three dimensional display methods – parallel Projection – Perspective projection – Depth Cueing – Visible line and surface identification.	Students can 1. Understand the characteristics of 3D Graphics 2. Explore projections and visible surface detection techniques for display of 3D scene on 2D screen	13
5	Three dimensional Transformations: Three dimensional transformations – Three dimensional viewing – Projection – Viewing transformations – Depth buffer(Z-Buffer) method – A-buffer method - implementation of viewing operations.	Students can 1. Deliberate the details of Transformation and Viewing Techniques. 2. Identify a typical graphics pipeline and apply graphics programming techniques to design and create computer graphics	13

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Computer Graphics C version	Donald Hearn M.Pauline Baker	2005(2)	Pearson Education India
2	Computer Graphics: Principles and Practice in C	James D. Foley, Andries van Dam, Steven K. Feiner, and John F. Hughes	2013(3)	Addison Wesley
3	Introduction to Computer Graphics	N. Krishnamurthy	2002 (1)	Tata McGraw-Hill Education

Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Schaum's Outline of Computer Graphics	Zhigang Xiang and Roy A. Plastock	2000(2)	McGraw-Hill Education
2	Computer Graphics using Open GL	Francis S Hill Jr	2004(1)	Pearson Education


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SEMESTER VI

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITE63	Course Title: Internet Security
Category: Major Elective-II	Credits:5 Hours:5

Objectives

1. To identify computer and network security threats, classify the threats and develop a security model to prevent, detect and recover from the attacks
2. To encrypt and decrypt messages using block ciphers, sign and verify messages using well known signature generation and verification algorithms.
3. To analyze existing authentication and key agreement protocols and identify the weaknesses of these protocols.

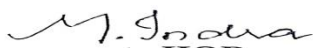
Unit	Detailed Syllabus	Outcomes	Hours
1	Introduction: Why require a security?–Picking a Security Policy–Strategies for a Secure Network – The Ethics of Computer Security – Security Threats and levels – Security Plan (RFC 2196).	Students can 1. Depict security issues in Internet 2. Protect any network from the threats in the world 3. Familiarize with Security Plan in Internet	13
2	Classes of Attack: Stealing Passwords–Social Engineering–Bugs and Backdoors–Authentication Failures – Protocol Failures: Information Leakage – Exponential Attacks–Viruses and Worms – Denial – of – Service Attacks – Botnets – Active Attacks.	Students can 1.Implement various networking protocols 2. Familiarize with various attack that are occurred in Internet 3. Know how to steal a password	13
3	Computer Security: What are Viruses, Trojan Horse, and Worms?–How Viruses attach, How viruses gain control, Virus Signature, The Sources of Viruses How to protect the computer against virus – What is the Structure of Viruses?	Students can 1. Identify the different type of viruses 2. Know how to protect file from the viruses 3. Disseminate how viruses are entered into system and do processing	13
4	Firewalls and Proxy Servers : Kinds of Firewalls : Packet Filters–Application–Level Filtering – Circuit – Level Gateways – Dynamic Packet Filters – Distributed Firewalls – What Firewalls Cannot Do – Filtering Services : Reasonable Services to Filter – Digging for Worms – Packet – Filtering – Implementing Policies (Default allow, Default Deny) on Proxy-Firewall Engineering-Firewall Problems	Students can 1. Develop SSL or Firewall based solutions against security threats 2. Protect any network from the threats in the world 3. Gain the knowledge about how to filter the packets using firewalls	13
5	Cryptography: Introduction to Basic Encryption and Decryption, Diffie–Hellman Key Exchange – Concept of Public Key and Private Key – Digital Signatures.	Students can 1.Encrypt and decrypt messages using block ciphers 2.Sign in and verify messages using well known signature generation and verification algorithms 3.Do research in the emerging areas of cryptography and network security	13

Text Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Firewalls and Speed, Internet Security A Jumpstart For Systems Administrators And IT Managers	William R. Cheswick, Steven M. Bellovin and Aviel D. Rubin	2003(2)	Addison-Wesley Professional
2	Cryptography And Network Security E/2	Behrouz Forouzan	2010(2)	McGraw Hill Education
3	Cyber security and Cyber war What everyone needs to know	P.W.Singer, AllanFriedman	2014(1)	Oxford UniversityPress

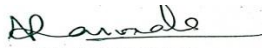
Reference Books

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1	Production and Security on the Information Superhighway	Frederick B.Cohen	2000(1)	Wiley India
2	Network Security Assessment	Chris McNab	2003(2)	O'REILLY Media


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SEMESTER VI

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITCL61	Course Title: Python Programming Practical
Category: Core Lab-6	Credits:3 Hours:5

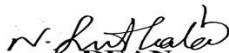
Objectives

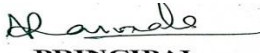
- 1. To acquire programming skills in core Python.
- 2. To acquire Object Oriented Skills in Python
- 3. To develop the skill of designing Graphical user Interfaces in Python
- 4. To develop the ability to write database applications in Python

S.NO	EXERCISES
1	Write a python program to swap two numbers without using third variable
2	Write a python program to read two numbers and find the sum of their cubes
3	Write a python program to read three numbers and if any two variables are equal , print that number
4	Write a python program to read three numbers and find the smallest among them
5	Write a python program to read radius of a circle and print the area
6	Write a Python program to find the sum of all numbers in a list
7	Write a Python program to print all even numbers and another list of odd numbers from a given list
8	Write a Python program to remove repeated elements from a given list without using built-in methods.
9	Write a Python program to find the longest word in a given sentence
10	Write a Python program to sort a given list of numbers without using sort() function.
11	Write a Python program to find the number of occurrences of all vowels present in a string
12	Write a Python program to check whether the given string is palindrome or not.
13	Write a menu driven program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon users choice
14	Write a menu-driven program, using user-defined functions to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user
15	Creating a CSV File based on user input and Reading a CSV File already created and displays the contents.
16	Create a Machine Learning model in python to decide whether to wear a jacket or not depending on the weather by having your own training data set


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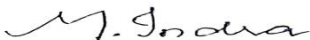
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SEMESTER VI

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITCL62	Course Title: Web Programming Practical
Category: Core Lab-8	Credits: 2Hours:4

Objectives

- 1. To develop basic programming skills using Client Side and Server Side Scripting
- 2. To provide students with a deep, critical and systematic understanding of most significant technologies for developing web applications
- 3. To demonstrate how these technologies may be used on today's website.
- 4. To provide knowledge of the characteristics of good web application design principles.

S.NO	EXERCISES
1.	Develop JavaScript application using Conditional Statement
2.	Develop JavaScript application using looping Statement
3.	Develop a HTML table formatting application
4.	Develop a JavaScript application to generate day of a date entered using switch statement
5.	Develop a sorting application for array of names using JavaScript
6.	Display a XML data in table format using CSS
7.	Display a XSL formatted XML application
8.	Develop a JavaScript application user login application which authenticate a user
9.	Write a PHP program for printing pyramid patterns
10.	Write a PHP program to create and manipulate a table
11.	Write a PHP program to upload a file
12.	Write a PHP program to compare two strings


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PRINCIPAL
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UIT – BOS - Sri Sarada College for Women (Autonomous), Tirunelveli - 627011

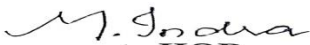
SEMESTER VI

Programme: B.Sc	Subject: Information Technology
Course Code: 19UITCL63	Course Title: .NET Programming Practical
Category: Core Lab-8	Credits:2Hours:4

Objectives

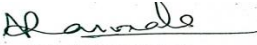
- 1. To create ASP.Net applications using standard .net controls.
- 2. To develop a data driven web application.
- 3. To Connect to data sources and managing them.
- 4. To maintain session and controls related information for user used in multi-use application

S.NO	EXERCISES
1	Arithmetic Operations Using Text Box and Button.
2	Adding and Removing Items in runtime using Drop Down List and List Box.
3	Upload and display Image using File Up Load Control.
4	Display Date, Day, Month, Year, Day of Week, Day of the Year using Calendar Control.
5	Create a Registration form and apply ASP.NET validation Controls.
6	Binding data in Grid view using Source
7	Create small pay roll.
8	Create user control with Source.
9	Create a Login Page using Session Variable.
10	Create Student Mark List using SQL Provider.
11	Grid View, Edit, Update, Cancel and Delete using Source.
12	Create a Crystal Report.
13	Create a Simple Web Page Using CSS.
14	Create a Simple multiple choice questionnaire. Submit the answer and display the Score.
15	Create an Online photo Gallery using Data list and Data Grid Control.


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 (Affiliated to Manonmaniam Sundaranar University, Tirunelveli)
TIRUNELVELI – 627 011
Department of Information Technology
Certificate Programme
CERTIFICATE IN CYBER SECURITY

1. COURSE TITLE

CERTIFICATE IN CYBER SECURITY

2. OBJECTIVE

1. To protect the confidentiality of data.
2. To preserve the integrity of data.
3. To promote the availability of data for authorized users.
4. To strengthen the Regulatory framework for ensuring a Secure Cyberspace ecosystem

3. OUTCOME

1. Analyze and evaluate the cyber security needs of an organization.
2. Determine and analyze software vulnerabilities and security solutions to reduce the risk of exploitation.
3. Implement cyber security solutions and use of cyber security in Smart phones.

4. SYLLABUS

Unit	Detailed Syllabus
I	Introduction :History Of Internet - Internet Addresses - Dns - Internet Infrastructure - World Wide Web- Introduction To Cyber Crime : Classification Of Cyber Crimes - Reasons For Commission Of Cyber Crimes -Malware And Its Type - Kinds Of Cyber Crime
II	Authentication-Encryption - Digital Signatures - Antivirus - Firewall - Steganography - Generating Secure Password -Guideline For Setting Secure Password - Using Password Manager - Some Popular Password Managers - Enabling Two-Step Verification - Securing Computer Using Free Antivirus- Working With Windows Firewall In Windows - Firewall In Windows 7 - Configuring Windows Firewall - Start & Use The Windows Firewall With Advanced Security
III	Finding The Best Browser According To The Users Requirement -Safe Browsing- A Website Is Secure or Not- Tips For Buying Online -Clearing Cache For Browsers - Wireless Lan- Major Issues With Wlan- Secure Wlan- Wi-Fi At Home
IV	Safe Browsing Guidelines For Social Networking Sites :General Tips On Using Social Networking Platforms Safely - Posting Personal Details - Friends, Followers And Contacts -Status Updates - Sharing Online Content -Revealing Your Location -Sharing Videos And Photos -Instant Chats -Joining And Creating Groups, Events And Communities -Email Security Tips
V	Smartphone Security Guidelines :Purses, Wallets, Smartphones -Platforms, Setup And Installation -Communicating SecurelyThrough Voice And Messages: With A Smartphone Secure Voice Communication -Sending Messages Securely -Storing Information On Your Smartphone -Sending Email From Your Smartphone -Capturing Media With Your Smartphone -Accessing The Internet Securely From Your Smartphone -advanced Smart Phone Security

5. REFERENCE BOOK

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Introduction to Cyber Security	Dr.JeetendraPande	2017	Uttarakhand Open University

6. ELIGIBILITY

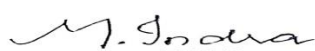
Minimum +2 (Open to all on this option)

7. DURATION OF THE COURSE

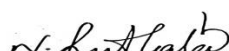
35Hours (1 Semester)

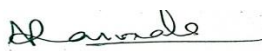
8. EXAMINATION/ EVALUATION COMPONENTS

Internal(40)		External(60)	
Average of Two test	- 20 Marks	Section A - True or False (1)	-10 Marks
Assignment 1	- 5 Marks	Section B - 5 out of 8 (4)	- 20 Marks
Quiz 1	- 5 Marks	Section C - 3 out of 5 (10)	- 30 Marks
Field Visit/Case Study Report/Record	- 10 Marks		


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TIRUNELVELI – 627 011
Department of Information Technology
Certificate Programme

CERTIFICATE IN ESSENTIALS OF BIG DATA ANALYTICS

1. COURSE TITLE

CERTIFICATE IN ESSENTIALS OF BIG DATA ANALYTICS

2. OBJECTIVE

1. To provide an overview of Apache Hadoop
2. To provide HDFS Concepts and Interfacing with HDFS
3. To understand Map Reduce Jobs
4. To provide hands on Hadoop Eco System
5. To apply analytics on Structured, Unstructured Data.
6. To exposure Data Analytics with R.

3. OUTCOME

1. Identify Big Data and its Business Implications.
2. List the components of Hadoop and Hadoop Eco-System
3. Access and Process Data on Distributed File System

4. SYLLABUS

Unit	Detailed Syllabus
I	Introduction To Big Data And Hadoop: Types of Digital Data- Introduction to Big Data- Big Data Analytics- History of Hadoop- Apache Hadoop- Analysing Data with Unix tools- Analysing Data with Hadoop- Hadoop Streaming- Hadoop Echo System- IBM Big Data Strategy- Introduction to InfosphereBigInsights and Big Sheets.
II	HDFS(Hadoop Distributed File System) : The Design of HDFS- HDFS Concepts- Command Line Interface- Hadoop file system interfaces- Data flow- Data Ingest with Flume and Scoop and Hadoop archives- Hadoop I/O: Compression- Serialization- Avro and File-Based Data structures.
III	Map Reduce: Anatomy of a Map Reduce Job Run- Failures- Job Scheduling- Shuffle and Sort- Task Execution- Map Reduce Types and Formats- Map Reduce Features
IV	Hadoop Eco System : PIG : Introduction to PIG- Execution Modes of Pig- Comparison of Pig with Databases- Grunt- Pig Latin- User Defined Functions- Data Processing operators.
V	Hive : Hive Shell- Hive Services- Hive Metastore- Comparison with Traditional Databases- HiveQL- Tables- Querying Data and User Defined Functions. Hbase : HBasics- Concepts- Clients- Example- Hbase Versus RDBMS. Big SQL

5. REFERENCE BOOKS

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Hadoop: The Definitive Guide	Tom White	2012 (3)	O'reily Media
2.	Big Data Analytics	SeemaAcharya, SubhasiniChellappan	2015	Wiley

6. ELIGIBILITY FOR ADMISSION

Minimum +2 (Open to all on this option)

7. DURATION OF THE COURSE

35 Hours (1 Semester)

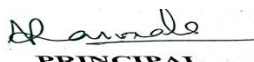
8. EXAMINATION/ EVALUATION COMPONENTS

Internal(40)	External(60)
Average of Two test - 20 Marks	Section A - True or False (1) - 10 Marks
Assignment 1 - 5 Marks	Section B - 5 out of 8 (4) - 20 Marks
Quiz 1 - 5 Marks	Section C - 3 out of 5 (10) - 30 Marks
Field Visit/Case Study Report/Record - 10 Marks	


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TIRUNELVELI – 627 011
Department of Information Technology
Diploma Programme
DIPLOMA IN DIGITAL MARKETING

1. COURSE TITLE

DIPLOMA IN DIGITAL MARKETING

2. OBJECTIVE

1. Create a structured digital marketing plan and budget
2. Identify the correct measures to set objectives and evaluate digital marketing
3. Review and prioritize the strategic options for boosting customer acquisition, conversion, and retention using digital marketing
4. Understand and follow the practical success factors to improve results from digital marketing

3. OUTCOME

1. Explains the role and importance of digital marketing in a rapidly changing Business landscape
2. Discuss the key elements of a digital marketing strategy
3. analyses the confluence of marketing, operations, and human resources in real-time delivery

A

4. SYLLABUS

Unit	Detailed Syllabus
I	Digital Marketing Strategy: Introduction -Key terms and concepts- What is marketing?- What is digital marketing? - Understanding marketing strategy-The building blocks of marketing strategy-Crafting a digital marketing strategy- Content Marketing Strategy: Introduction -Key terms and concepts-Defining Content marketing-Strategic building blocks-Content creation-Content channel distribution-Tools of the trade- Advantages and challenges
II	Web Development and Design: Introduction- Key terms and concepts-Web -Web development - Mobile development - Step-by-step guide to building a website Writing for Digital: Introduction - Key terms and concepts-Writing for your audience-Types of web copy-HTML for formatting-SEO copywriting
III	Search Engine Optimization (SEO): Introduction -Key terms and concepts- Understanding SEO - Search engine friendly website structure-SEO and key phrases- Link popularity-User insights-Tools of the trade-Benefits and challenges Online Advertising: Introduction-Key terms and concepts- Online advertising objectives - The key differentiator -Types of display adverts -Payment models for display advertising- Getting your ads online- Targeting and optimizing-Tracking-Step-by-step guide to online advertising
IV	Video Marketing: Introduction- Key terms and concepts-Video content strategy- Video production step by step - Video promotion- Tools of the trade-Advantages and challenges Social Media Channels: Introduction- Key terms and concepts - Social media channels -Social networking-Content creation -Bookmarking and aggregating-Location and social media
V	Email Marketing: Introduction- Key terms and concepts - Email strategy and planning-Step-by-step process - Tools of the trade- Advantages and challenges . Mobile Marketing: Introduction- Key terms and concepts -The role of mobile in personal communication- Mobile messaging channels- Location and mobile -Mobile commerce- Integrating mobile into online marketing -Augmented reality -

5. REFERENCE BOOKS

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	Digital Marketing For Dummies	Ryan Deiss	2017(1)	John Wiley & Sons
2	E-Marketing The essential guide to marketing in a digital world	Rob Stokes	2013(5)	Quirk eMarketing (Pty) Ltd

6. ELIGIBILITY FOR ADMISSION

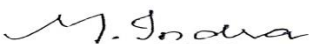
Minimum +2 (Open to all on this option)

7. DURATION OF THE COURSE

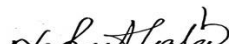
65 Hours (2 Semesters)

8. EXAMINATION/ EVALUATION COMPONENTS

Internal(40)		External(60)	
Average of Two test	- 20 Marks	Section A - True or False (1)	- 10 Marks
Assignment 1	- 5 Marks	Section B - 5 out of 8 (4)	- 20 Marks
Quiz 1	- 5 Marks	Section C - 3 out of 5 (10)	- 30 Marks
Field Visit/Case Study Report/Record	- 10 Marks		


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TIRUNELVELI – 627 011
Department of Information Technology
Diploma Programme
DIPLOMA IN R PROGRAMMING FOR DATA SCIENCE

1. COURSE TITLE

DIPLOMA IN R PROGRAMMING FOR DATA SCIENCE

2. OBJECTIVE

- 1. To understand the different data types, structures in R
- 2. To understand how to create and manipulate dates in R
- 3. To write user-defined R functions
- 4. To use control statements and write Loop constructs in R
- 5. To understand base R graphics

3. OUTCOME

- 1. Understand the basics in R programming in terms of constructs, control statements, string functions
- 2. Learn to apply R programming for File processing
- 3. Able to appreciate and apply the R programming from a statistical perspective

4. SYLLABUS

Unit	Detailed Syllabus
I	History and Overview of R: What is R? -What is S? -The S Philosophy Back to R -Basic Features of R -Free Software -Design of the R System -Limitations of R -R Resources Getting Started with R :Installation -Getting started with the R interface R Nuts and Bolts :Entering Input -Evaluation -R Objects -Numbers -Attributes -Creating Vectors -Mixing Objects -Explicit Coercion -Matrices -Lists -Factors -Missing Values -Data Frames -Names
II	Getting Data In and Out of R :Reading and Writing Data -Reading Data Files with read.table() - Reading in Larger Datasets with read.table -Calculating Memory Requirements for R Objects - Using the readr Package -Using Textual and Binary Formats for Storing Data- Using dput() and dump() - Binary Formats
III	Interfaces to the Outside World : File Connections -Reading Lines of a Text File - Reading From a URL Connection Subsetting R Objects : Subsetting a Vector -Subsetting a Matrix -Subsetting Lists - Subsetting Nested Elements of a List -Extracting Multiple Elements of a List -Partial Matching - Removing NA Values
IV	Vectorized Operations :Vectorized Matrix Operations Dates and Times :Dates in R -Times in R - Operations on Dates and Times Debugging : Debugging Tools in R -Using traceback() -Using debug()- Using recoverSummary
V	Profiling R Code : Using system.time()-Timing Longer -The R Profiler -Using summaryRprof() Simulation : Generating Random Numbers -Setting the random number seed - Simulating a Linear Model -Random Sampling

5. REFERENCE BOOK

S.No	Title of the Book	Author/s	Year (Edn)	Publisher/s
1.	R Programming for Data Science	Roger D. Peng	2014	Lean Publishing

6. ELIGIBILITY FOR ADMISSION

Minimum +2 (Open to all on this option)

7. DURATION OF THE COURSE

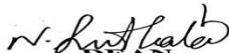
65 Hours (2 Semesters)

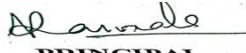
8. EXAMINATION/ EVALUATION COMPONENTS

Internal(40)	External(60)
Average of Two test - 20 Marks	Section A - True or False (1) - 10 Marks
Assignment 1 - 5 Marks	Section B - 5 out of 8 (4) - 20 Marks
Quiz 1 - 5 Marks	Section C - 3 out of 5 (10) - 30 Marks
Field Visit/Case Study Report/Record - 10 Marks	


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Sri Sarada College for Women, Tirunelveli 627011(An Autonomous Institution)
Institution recognised u/s 2(f) and 12(B) of UGC & Reaccredited with “A” grade by NAAC(A branch of Sri Ramakrishna Tapovanam,
Tirupparaithurai)
Department of Computer Applications
UG Programme Structure for 2019-2022 Batch

Sem	Part	Category	Course code	Course title	Hours/week			Credits
					L	P	T	
I	II	Language	19P1TB1/19P1SB1	Tamil/Sanskrit	6	0	6	4
	II	English	19P2EB1	English	6	0	6	4
	III	Core-1	19UCAC11	Programming in C	4	0	4	4
	III	Allied-1	19UCAA11	Basic Electronics	4	0	4	3
	IV	Part IV	19UCES11	Environmental Studies	2	0	2	2
	III	Core Practical-1	19UCACL11	C Programming Practicals	0	4	4	4
	III	Allied Practical-1	19UCAAL11	Office Automation Practicals I	0	4	4	3
Total number of papers= L+P= 5+ 2				Total	22	8	30	24
II	II	Language	19P1TB2/19P1SB2	Tamil/Sanskrit	6	0	6	4
	II	English	19P2EB2	English	6	0	6	4
	III	Core-2	19UCAC21	Object Oriented Programming C++	4	0	4	4
	III	Allied-2	19UCAA21	Mathematical Foundations for Computer Science	4	0	4	3
	IV	Part IV	19UCVE21	Value Based Education	2	0	2	2
	III	Core Practical-2	19UCACL21	Object Oriented Programming C++ Practicals	0	4	4	4
	III	Allied Practical-2	19UCAAL21	Office Automation Practicals II	0	4	4	3
Total number of papers= L+P= 5+ 2				Total	22	8	30	24
III	III	Core – 3	19UCAC31	Programming in Java	4	0	4	4
	III	Core – 4	19UCAC32	Web Technology	4	0	4	3
	III	Core – 5	19UCAC33	Financial Accounting for Computer Applications	4	0	4	3
	III	Allied –3	19UCAA31	Data Structures	4	0	4	3
	III	Skill Based I	19UCAS31	Photoshop and Dream weaver	4	0	4	3
	IV	Non-Major-Elective –1	19UNCA3A	Computer Basics to Advancements Introduction to Information Technology	2	0	2	2
			19UNCA3B					
	III	Core Practical –3	19UCACL31	Programming in Java Practicals	0	4	4	2
	III	Allied Practical-3	19UCAAL31	Data Structures Practicals	0	4	4	2
	IV	Common	19UCYP31	Yoga Theory and Practices	0	0	0	1
Total number of papers= L+P= 7+ 2				Total	22	8	30	23
IV	III	Core – 6	19UCAC41	Visual Basic	4	0	4	4
	III	Core – 7	19UCAC42	Computer Networks	4	0	4	3
		Core – 8	19UCAC43	Essentials of E-Commerce	4	0	4	3
	III	Allied-4	19UCAA41	Resource Management Techniques	4	0	4	3
	III	Skill Based 2	19UCAS41	Microprocessor	4	0	4	3
	IV	Non-Major -Elective -2	19UNCA4A/	Introduction to Internet with HTML/MS Word 2013	2	0	2	2
			19UNCA4B					
	III	Core Practical- 4	19UCACL41	Visual Basic Practicals	0	4	4	2
	III	Allied Practical-4	19UCAAL41	Interactive design using Flash Practicals	0	4	4	2
	IV	Common	19UDLT41	Digital Learning Tools	0	0	0	1
	V	Extension Activity	19UNCC41/19UNSS41/19UYRC41/19URRC41/19UPESY41/19UCCC41/19USSS41/19UCGC41	Extension Activity (NCC/NSS,YRC/RRC/PESSY/CCC/SSS/CGC)	-	0	0	1
Total number of papers= L+P= 7+2				Total	22	8	30	24
V	III	Core –9	19UCAC51	Software Engineering	4	0	4	4
	III	Core –10	19UCAC52	Advanced Database Management Systems	5	0	5	4
	III	Core-11	19UCAC53	Basics of .NET Programming	4	0	4	3
	III	Core Elective- 1	19UCAE51 / 19UCAE52/ 19UCAE53 / 19UCAE54	Artificial Intelligence/ Essentials of Cloud Computing/ Cyber Security/ Multimedia	4	0	4	3
	IV	Common	19UPDC51	Personality Development	2	0	2	1
	III	Core Practical –5	19UCACL51	Advanced Database Management Systems Practicals	0	5	5	2
	III	Project	19UCACP51	Computer Applications for Competitive Examinations and Project	0	6	6	6
Total number of papers= L+P= 6 + 1				Total	19	11	30	23
VI	III	Core –12	19UCAC61	Operating System	4	0	4	4
	III	Core –13	19UCAC62	Computer Graphics and Multimedia	4	0	4	3
	III	Core –14	19UCAC63	Data Mining	6	0	6	4
	III	Core Practical – 7	19UCACL61	Graphics and Multimedia Practicals	0	4	4	2
	III	Core Elective- 2	19UCAE61/ 19UCAE62/ 19UCAE63/ 19UCAE64/	Software Testing/Basics of Digital Image Processing/ Mobile Communication/Android Studio	4	0	4	3
	III	Project	19UCACP62	Project	-	8	0	8
Total number of papers= L+P= 5 +2				Total	18	12	30	24
				Grand Total	125	55	180	142


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Smt. P. Anusha


Joint Dean
Dr. V. Sangeetha


Dean
Smt. N. Lavanya


Principal
Dr. N. Kamala

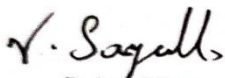
Programme Outcomes (POs):

PO1	Apply fundamental knowledge of Mathematics, Financial Accounting and Principles of Computing Techniques to solve the problems in Computer Science and its application areas.
PO2	Develop a modern programming languages
PO3	Explore and apply modern tools and technologies in the building of software applications.
PO4	Communicate effectively and present technical information in oral and written reports
PO5	Develop a technology through internship project and industrial visit

Programme Specific Outcomes (PSOs):

PSO1	Apply Mathematics, Financial Accounting and Computer Science appropriately to the Computer Applications
PSO2	Use Algorithms, Data Structures, Database Management, Software Engineering, concepts of Programming Languages and Computer organization & Architecture
PSO3	Maintain the Systems, Applications, Software and Network Components in a computing environment.
PSO4	Develop dynamic Websites and Web Applications needed for the society.
PSO5	Acquire Strong skills in learning new programming environments


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Joint Dean
Dr. V. Sangeetha


Dean
Smt. N. Lavanya


Principal
Dr. N. Kamala

Objectives:

1. To obtain knowledge about the structure and model of the Java programming language.
2. To gain knowledge about constructors and packages in java.
3. To know about exception handling fundamentals.
4. To understand Fundamentals of applet and awt.
5. To get trained for developing software in the Java programming language.

Programme : BCA		Subject : Computer Applications	
Course code: 19UCAC31		Course Title : Java Programming	
Category : Core		Credits : 4	
To obtain knowledge about the structure and model of the Java programming language.			
To gain knowledge about constructors and packages in java.			
To know about exception handling fundamentals.			
To understand Fundamentals of applet and awt.			
To get trained for developing software in the Java programming language.			
Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction: The Genesis of Java – The Java class Libraries – Data types, Variables – Operators – Arrays. Control Statements: Selection statements – Iteration statements – Jump statements. Introducing classes: Class Fundamentals – Declaring objects –Methods.	The students can 1. Learn to compile, and execute Java programs, basic data types and control flow constructs. 2. Understand the object oriented class structures with parameters, constructors, utility and calculationsmethods. 3. Execute Java programs by using arrays and recursion.	12
2	Constructors: This keyword –Garbage collection. Overloading Methods – Access controls – Nested and Inner classes. Inheritance: Inheritance basics – using Super- Method overriding – Dynamic method Dispatch –Abstract classes- using final with inheritance. Packages and Interfaces: Packages -Access protection –Importing Packages – Interfaces.	The students can 1. Understand the OOP concepts and the of java programming (Console and GUI based). 2. Apply OOP and Java programming in problem solving. 3. Extend their knowledge in Java programming.	12
3	Exception Handling: Exception Handling Fundamentals – Java Built in Exceptions – creating own Exception subclasses. Multithreaded Programming:-The Java Thread Model –Creating a Thread – Synchronization – Inter Thread communication.	The students can 1. Learn exception handling. 2. Know thread and multithreading. 3. Understand and implement Inter Thread communication.	12
4	I/O Basics: Reading console Input –Writing Console Output –Reading and writing Files –Exploring java.io.Applet Fundamentals –Applet Basics –Introducing the AWT	The students can 1. Learn I/O basics and file handling in Java. 2. Use the standard and third party Java's API's and applications. 3. Understand the basic principles of creating Java applications with graphical user interface.	12
5	Software Development using Java: Java Beans introduction -- Servlets: Life cycle –A simple servlet – servlet API – Handling HTTP Request and Responses – Session tracking. Networking Basics – Remote Method Invocation (RMI) –Accessing Database with JDBC	The students can 1. Create rich user-interface applications by using modernAPI's. 2. Understand Java-based software and the code of medium-to-highcomplexity 3. Understand the approaches of designing software applications.	12

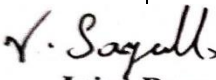
Text Books:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Java: The Complete Reference	Herbert Schildt	2017(10)	Tata Mcgraw Hill, New Delhi
2	Programming with Java	E Balagurusamy	2019(6)	Tata Mcgraw Hill, New Delhi

Reference Books:

S. No	Title of the Book	Author's	Year(Edn)	Publisher/s
1	Programming with Java	RohitKhurana	2014(1)	Vikas Publishing House
2	Programming with Java2	C.Xavier	2007(1)	SciTech Publications, Chennai
3	Java : how to program, early objects	Harvey M. Deitel, Paul J. Deitel	2017(11)	Pearson Publications, Uttar Pradesh


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Objectives:	Programme : BCA	Subject : Computer Applications
	Course code:19UCAC32	Course Title : Web Technology
	CategoryTo employ the fundamental computer theory to basic programming techniques. 4	Credits to basic programming techniques. 4
1.	To use the fundamental skills to maintain web server services required to host a website.	
2.	To gain knowledge about java script.	
3.	To apply markup languages for process identify and presenting of information in web pages.	
4.	To understand the concept of common gateway interfaces and security.	
5.		

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction to the web: Understanding the Internet and world wide web-History of the web- web applications-writing web projects- Identifiers-objects-Target users-web team- planning and process Development- Standards- TCP/IP Protocols suite- IP Address- MIME- cyber laws. HTTP Introduction-web servers and clients –Resources-URL and its Anatomy- Message Format- Persistent and Non-Persistent- web caching- Proxy.	The students can 1. Know the history of WorldWide Web. 2. Learn the basics terms in World Wide Web. 3. Understand the protocols.	12
2	Hyper Text Markup Language (HTML): History of HTML and W3C- HTML and its Flavors-HTML Basics-Elements- Attributes- andTags –Basic Tags-Advanced Tags-Frames. Cascading style sheet (CSS): Introduction – Advantages- Adding CSS-Browser compatibility- CSS and page layout-selectors.	The students can 1. Select and apply markup languages for processing, identifying, and information in web pages. 2. Understand the web architecture and web services. 3. Design interactive web pages using HTML.	12
3	JAVA Script: Introduction –Variables-Literals- Operators-control structure-conditional statements-Arrays-Functions-objects: Java script Regular Expression :Introduction	The students can 1. Use scripting languages totransfer data and add interactive components to web pages. 2. Analyze the given assignment to select sustainable web development. 3. Develop knowledge design methodology.	12
4	Extensible DataMarkup Language (XML): Common usage –Role of XML-Prolog –Body elements –Attributes –Validation-Displaying XML- Namespace.XML DTD: XML Schema languages- validation –Introduction to DTD- Purpose of DTD- Using a DTD in an XML Document –element type Declaration-Attributedeclaration.	The students can 1. Write a well formed / valid XML document. 2. Develop solution to complex problems using appropriate method, technologies. 3. Develop web based application using suitable client and server side web technologies	12
5	Common Gateway Interface (CGI): Internet programming Paradigm-Server-side Programming-Languages for CGI - Applications –server Environment-Environment Variables- CGI building blocks –CGI Scripting Using C- Shell script- writing CGI programs-CGI security- Alternatives and Enhancements to CGI Server –side Java –Advantages over Applets – Server Alternatives-Servlet Life cycle.	The students can 1. Become familiar with client server architecture and to develop a web application 2. Develop CGI applications. 3. Acquire knowledge of Servlet.	12

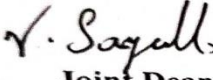
Text Books:

S. No	Title of the Book	Author’s	Year(Edition)	Publisher/s
1	Web Technology	UttamK.Roy	2010(1)	Oxford University press, Chennai
2	Web Technology	Gopalan, N.P.Akilandeswari	2007(3)	PHI learning publications, New Delhi

Reference Books:

S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Web technology TCP/IP architectureand Java programming	AchyutS.Godbole& Atulkahate	2000(1)	Tata Mcg raw hill Publications, New Delhi


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UCA-BOS Sri Sarada College for Women (Autonomous), Tirunelveli - 627011SEMESTER III

Programme : BCA	Subject : Computer Applications	
Course code : 19UCAC33	Course Title : Financial Accounting	
Category : Core – 5	Credits : 3	Hours: 4

Objectives:

1.
- To impart the basic accounting knowledge.
2.
- To acquire knowledge about journal and ledger.
3.
- To gain knowledge about methods of preparing trial balance.
4.
- To provide knowledge on the fundamental financial accounting.
5.
- To expose the students’ knowledge in various financial transaction and about the concepts of tally.

Unit	Detailed Syllabus	Outcomes	Hour
1	Basic Concepts Of Accounting: Introduction to Accounting : Need for Accounting –Accounting as the language of business – Attributes and steps of Accounting –Book keeping Vs. Accounting – Branches of Accounting – Methods of Accounting – Types of Accounting – Accounting Rules - Bases of Accounting – Accounting terminology. Basic Accounting Concepts: Meaning and classification of Accounting Concepts – Accounting Conversion – Accounting equations.	The students can 1. Learn about the various general aspects of business operations. 2. Explain the concepts and procedures of financial reporting, including income. 3. Locate and analyze the financial data from annual report.	12
2	Journal And Ledger: Recording a Financial Data: Memorandum Book, business transaction, Journal, Rules for Debit and Credit, Compound Journal entry, Advantages of Journal, Ledger, Ledger Account, Ledger Posting, Process of Posting, Balancing of An Account, Significance of Balances, Relation between Journal and Ledger-Subsidiary Books.	The students can 1. Explain and apply the accounting concepts. 2. Discuss the history and origin of accounting. 3. Prepare ledger accounts using double entry bookkeeping.	12
3	Preparing Trial Balance: Trial Balance: Objects, Methods of Preparing Trial balance, how to locate errors, hints for the preparation of trial balance & problems.	The students can 1. Identify the users of accounting information. 2. Analyze and journalize the transactions 3. Know the objectives of trail balance.	12
4	Final Accounts: Trading account – individual items posted to the debit of trading account – individual items credited to trading account – advantages of trading account – profit & loss account - advantages of profit & loss account- manufacturing account- balance sheet-classification of assets & liabilities.	The students can 1. Know the format of trail balance 2. Understand the preparation of Trail balance 3. Prepare the financial statements.	12
5	Accounts For Non-Profit Organization & Tally: Introduction – Final accounts of no trading concern- receipts and payments account – features- income & expenditure account – feature- distinction between the two – treatment of special items – some important adjustments – types of problems – Distinction between income and expenditure account and profit and loss account – accounts of professional men- Basic foundation of accounting software(Tally)- Elements of accounts- Account groups of income & expenses.	The students can 1. Ascertain the financial position of business. 2. Prepare the financial statements in accordance with appropriate standards. 3. Understand the financial accounts for non – trading concerns.	12

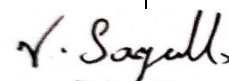
Text Books:

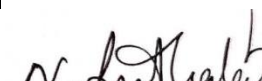
S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Financial Accounting Fundamentals, Analysis and Reporting	R.K.Arora	2018(2)	Wiley publications
2	Essentials of Financial Accounting	Asish k Bhattacharya	2017(4)	PHI Private limitedNew Delhi

Reference Books:

S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Financial Accounting Reporting and Analysis	JENNIFER MAYNARD	2017(2)	Oxford University Press.
2	Advanced Accountancy	by S.P.Jain andNarang	2005(1)	Kalyani Publications, New Delhi.
3	Financial Accounting	T.S.Reddy,A.Murthy	2011(1)	Margham Publications,Chennai.


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Objectives:

Programme : BCA	Subject : Computer Applications		
Course code :19UCAA31	Course Title : Data Structures		
Category : Allied	Credits : 3	Hours: 4	

1. To understand the basic data structures.
2. To gain knowledge about linked list.
3. To be able to solve problems using stack and queue data structure.
4. To learn and analyze the concept of trees.
5. To understand the basic search and sort algorithms.

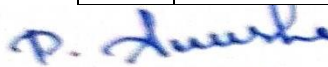
Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction: Pseudo code – The Abstract Data Type – A model for an Abstract Data Type Algorithms Efficiency. Searching: List Searches - Hashed List Searches – Hashed List Searches - Collision Resolution	The Students can 1. Understand the basic data structures. 2. Understand the basic search and sort algorithms. 3. Know the particular data structure, algorithm and how to solve a problem.	12
2	Linked Lists: Linear List Concepts - Linked List Algorithms - Double link list- circular linked list – Processing a Linked List – Complex Linked List Structure.	The students can 1. Implement the operations like searching, insertion, and deletion. 2. Implement the representation of linked list. 3. Understand the concepts and the process of linked list.	12
3	Stacks and Queues: Basic Stacks operations – Stack Linked List Implementation – Stack Applications – Basic Queue Operations – Queue Linked List implementation	The students can 1. Understand the basic data structures such as arrays, linked lists, stacks and queues. 2. Solve the problems of involving queue operations. 3. Determine and analyse the complexity of queue linked list.	12
4	Trees: Basic Tree Concepts - Binary Trees – Binary Tree Traversals – Expression Trees – General Trees – Binary Search Trees – Heap Definition – Heap Structure – Basic Heap Algorithm.	The students can 1. Understand the basic concepts of Binary Search Tree. 2. Implement the Binary Search Trees and the methods of Max/Min-Heap. 3. Understand the construction of expression trees and its techniques.	12
5	Sorting And Graphs: Sorting Concepts –quick Sort – Merge sort- Insertion sort Graphs: Terminology – Operations – Graph Storage Structure – Networks.	The students can 1. Implement an appropriate sorting/searching technique. 2. Realize the concepts of graph storage structure. 3. Understand the knowledge of tree and graphs concepts.	12

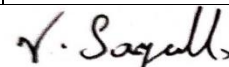
Text Books:

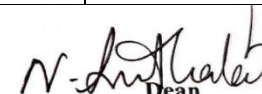
S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Data Structures and Program Design Using C++	D.Malhotra, N. Malhotra	2019(1)	Stylus Publishing,LLC
2	C++ Data Structures and Algorithms	WisnuAnggoro	2018(1)	Packt PublishingLtd

Reference Books:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Algorithms and Data Structuresin C++	Alan Parker	2018(2)	Routledge
2	Fundamentals of Data Structures	Seymoor,Lipschutz	2016(8)	McGraw Hill, New Delhi
3	Data Structures Through C++	YashavantKanetkar	2019(2)	BPB Publications


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UCA-BOS Sri Sarada College for Women (Autonomous), Tirunelveli - 627011SEMESTER III

Objectives:

1. To understand the basics of Photoshop.
2. To gain knowledge about layer basics.
3. To be able to edit videos.
4. To understand the basics of dream weaver.
5. To gain knowledge about web basics and able to publish a web page.

Programme : BCA		Subject : Computer Applications	
Course code :19UCAS3A		Course Title : Photo Shop and Dream Weaver	
Category : Skill Based - 1	To understand the basics of Photoshop.	Credits : 3	Hours: 4
Unit	Detailed Syllabus	Outcomes	Hour
1	Adobe Photoshop Basics: Installation of Photoshop-using tools-sampling a color- undoing actions-panels and panel locations. Basic photo correction: retouching- straightening and cropping-using brush and paint-working with selections.	The Students can 1.Understand the basics ofAdobePhotoshop. 2. Understand the basic photo corrections. 3. Know the installationprocedure of Photoshop.	12
2	Layer Basics and Quick fixes: Layer panel usage-rearranging layer-updating layer effects-flattening and saving files. Quick fixes: liquifying, blurring background-creating panorama-correcting image distortion. MASK and channels: creating quick mask-manipulating image with puppet-alpha channel usage.	The students can 1. Gain knowledge about quickfixes and layer basics. 2. Able to create quick mask. 3.Know the usage of alpha channel.	12
3	Advanced compositing: Arranging layers- smart filters-painting layer-adding background-upscaling low resolution image. Editing video: Timeline panel-animating text-adding transition, audio-muting unwanted audio-rendering video.	The students can Understand the concept of compositing. 2.Able to do painting in layers. 3.Able to edit videos using text, audio.	12
4	Dream weaver: Overview-design view, code view, live view-browser rendering engines-inserting objects-linking and tagging. CASS basics:CSS box model-applying case styling-CSS designer-CSS features and effects.	The students can 1. Understand the basics of Dreamweaver. 2. Gain knowledge on workingwith codes 3. Understand the concept of CSS.	12
5	Web design basics: Developing a new website-working with thumbnails and wire frames-working with templates-working with text,lists,tables-working with images- publishingto the web.	The students can 1. Gain knowledge about web basics 2. Able to work with thumbnailsand templates. 3. Get an insight of working with images.	12

Text Books:

S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Adobe Photoshop CC	Andrew faulkner and Conrad chavez	2018(1)	Pearson Education , Uttarpradesh
2	Adobe DreamweaverCC	Jim Maivald	2018(1)	Pearson education, Uttarpradesh

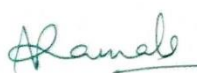
Reference Books:

S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Adobe Photoshop CC	Andrew faulkner and Conrad chavez	2019(1)	Pearson Education, Uttarpradesh
2	Adobe DreamweaverCC	James J Maivald	2014(1)	Pearson Education , Uttarpradesh
3	Adobe Photoshopcreative cloud	MunishwarGulati	2017(1)	Silicon media press,


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Objectives:

1.

2.

3.

4.

5.

To learn the basic components of the computer.

To gain knowledge about computers architecture.

To get insight of Input and Output devices.

To understand the concept of memory and storage devices.

To study functions and types of operating system.

Programme : BCA	Subject : Computer Applications	
Course code: 19NCA3A	Course Title : Computers Basics to Advancements	
Category : Non Major Elective-1	Credits 2	Hours: 2

Unit	Detailed Syllabus	Outcomes	Hour
1	Computer Basics: Introduction, Characteristics of Computer, Generation of Computer, Basic Applications of Computer, Architecture of Computer, Computer Memory, Classification of Computers, Computers – Languages, Software and Hardware.	The Students can 1. Understand the characteristics of computers and its generations. 2. Know about classification of computers and the systems. 3. To be able to learn the applications of computers	6
2	Peripheral Devices And Operating System: Interfacing with the computer, Input Devices, Output Devices, Storage Devices, Introduction, Types of User Interface, Functions of Operating System, Types of Operating System, Introduction to DOS.	The Students can 1. Know about the input and output devices. 2. Learn how the types of user interface 3. Gain knowledge about the types of operating system.	6
3	Introduction To Windows: Windows, Desktop and its Elements, Getting Started with Windows, Windows Explorer, Windows Settings, Creating shortcuts, Windows Accessories.	The Students can 1. Learn about the windows desktop. 2. Gain knowledge about how the getting started with windows. 3. Know about the ways we can get the windows accessories from a system.	6
4	Elements Of Word Processing: Introduction to Microsoft Office 2000, Introduction to Word Processing, MS Word, Creating, Opening and Saving a Document, MS Word Menu Bar, Formatting the text, View Menu, Insert Menu, Tools Menu, Table Manipulation, Mail Merge, Window Menu, Printing a Document.	The Students can 1. Understand the word processing in computer. 2. Learn about the word menu bar. 3. Gain knowledge about mail merge	6
5	Computer Networks And The Internet: Introduction to Computer Communication, Uses of Network, Common Types of Network, Network Topology, Basics of Internet, Internet Addressing, Features of Internet.	The Students can 1. To be Able to understand computer communication 2. Learn the functions of an network topology 3. Know how to features of internet.	6

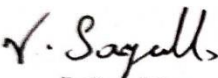
Text Books:

S. No	Title of the Book	Author's	Year(Edn)	Publisher/s
1	Computers Basics to Advancements	Dr.P.Velmani, Dr.V.LakshmiPraba	2015(2)	Chess Educational Publishers
2	Fundamental of Information Technology	Alexis Leao& Mathews Leon	2003(2)	Vikas Publication, New Delhi.

Reference Books& Web Links:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Introduction to computer	Peter Norton	2016(8)	Tata McGraw Hill publications, New Delhi
2	www.javatpoint.com			
3	www.geeksforgeeks.org			


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Objectives:

1.

2.

3.

4.

5.

To understand the basic concepts of computer.

To acquire knowledge about storage and memory.

To learn about RAM, basic I/O devices and secondary storage

To know about internet & its applications.

To understand basics of E-learning

Programme : BCA	Subject : Computer Applications
Course code : 19NCA3B	Course Title : Introduction To Information Technology
Category : Non-Major Elective-1	Credits : 2
	Hours: 2

Unit	Detailed Syllabus	Outcomes	Hour
1	Information Technology Basics: Introduction- Information- Technology- Information Technology, Present Scenario- Role of Information Technology- Information Technology and internet-Careers in IT Industry. Computer Organization and Architecture: Central Processing Unit-inside a computer- Data representation in Computer-Coding Schemes	The Students can 1. Understand computer viruses, biometric devices, encryption technique, digital signature, email filtering, firewall, and precautions on Web 2. Understand ethical issues regarding copyright, software licenses. 3. Know information privacy, intellectual property, content filtering, Spam, and laws enacted	6
2	Computer Storage And Memory: Introduction- Memory Hierarchy- Random Access Memory (RAM)-Read Only Memory (ROM)-RAM- ROM and CPU interaction-Types of Secondary storage devices-Magnetic tape- Magnetic disk-types of magnetic disk- optical disk- type of optional disks.	The Students can 1. Learn about computer memory and its types. 2. Know about memory hierarchy. 3. Understand secondary storage devices.	6
3	Input & Output Devices: Input- Output Media: Introduction- types of input devices- types of output devices- Multimedia. Essentials: Introduction- Multimedia definition- Building blocks of Multimedia- Multimedia system- Multimedia applications- Virtual reality.	The Students can 1. Learn about various I/O devices. 2. Understand the building blocks of multimedia. 3. Learn the basics of virtual reality.	6
4	About Internet: The Internet: Introduction, Evolution of Internet – Basic Internet terms – Getting Connected to Internet – Internet Applications – Data over Internet. Internet tools: Introduction – Web Browser – Browsing Internet using Internet Explorer – E-Mail – Search engines – Instant messaging.	The Students can 1. Understand the internet tools. 2. Know about web browsers. 3. Learn to send mails and messages.	6
5	Current Trends In It: Emerging trends in IT: Introduction, E-Commerce – Electronic Data Interchange – Mobile Communication – Bluetooth – Global Positioning System – Infrared Communication – Smart Card – Imminent Technologies - E-learning basics(ICT), tools& its resources	The Students can 1. Understand the current scenario in IT. 2. Will learn and use the latest technologies. 3. Get a knowledge about latest communication technologies	6

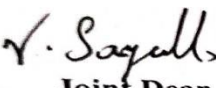
Text Books:

S. No	Title of the Book	Author's	Year(Edn)	Publisher/s
1	Introduction to Information technology	V.Rajaraman	2018(3)	PHI Publication, New Delhi
2	Introduction to computer and Information Technology	D.Gloryrathamary, S.Selvanayagi	2003(1)	Shekina publications,

Reference Books& Web Links:

S. No	Title of the Book	Author's	Year(Edn)	Publisher/s
1	Introduction to Information Technology	V.Rajaraman	2003(1)	PHI Publication, New Delhi
2	Fundamental of Information Technology	Alexixleao , Mathews leon	2003(2)	Vikas Publications, Ahmedabad
3	www.elearninglearning.com			


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1.	Programme : BCA	Subject : Computer Applications
2.	Course code : 19UCACL31	Course Title : Java Programming Practicals
3.	Category : Core Practical	Credits : 2
4.	Hours : 4	

To create an employee package to maintain the information about the employee. Use constructors to initialize the employee number and use overloading method to set the basic pay of the employee. By using this package create a java program.

To Program to implement polymorphism, inheritance and inner classes.

To create a frame with user specific size and position it at user specific position (use command line argument). Then different shapes with different colors (use menus)

To create a Java program to handle different mouse events.

To create an applet for a calculator application.

To create a Java program to maintain the students information in text file.

To animate images at different intervals by using multithreading concepts.

To create a Java program by using JDBC concepts to access a database.

To create a Java program to implement RMI.

To create a Java bean program to view an image.

To create a program using Java script.

To write a java program that reads a line of integers and then displays each integer andsum of all integers using string tokenizer class.

To write a java program to sort the given list of names in ascending order.

To write a java program that prints meta-data of a given table.

To write a java program that displays the multishapes using Applet.


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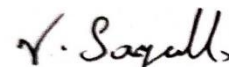

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	Programme : BCA	Subject : Computer Applications
	Course code :19UCAAL31	Course Title : Data Structures Practicals
	Category : Allied Practical-3	Credits : 2
		Hours: 4
1.	To create a C++ program to implement Sequential search and Binary search in array	
2.	To write a C++ program to implement linked list and perform the following operations	
a.	Add a node as first node b. Add a node as last node	
3.	To write a C++ program to create a singly linked list of integers.	
4.	To develop a C++program to implement linked list and implement the followingoperations	
a.	Delete the first node b. Delete the last node	
5.	To write a C++ program to implement a Stack Operations.	
6.	To write a C++ program to implement a Queue Operations	
7.	To write a C++ program to implement a double ended queue ADT using an array, using adouble linked list	
8.	To create a C++ program to implement binary tree using Linked and perform thefollowing traversal	
a.	In order traversal b. Pre order traversal c. Post order traversal	
9.	To Write a C++ program to implement graph using Depth First Search.	
10.	To develop a C++ program to implement graph using Breadth First Search.	
11.	To create a C++ program to implement Merge sort	
12.	To create a C++ program to implement Quick sort	
13.	To create a C++ program to implement selection sort to arrange elements in descendingorder.	
14.	To write a C++ program to implement insertion sort algorithm.	
15.	To write a C++ program to implement bubble sort algorithm	


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Objectives

1.

2.

3.

4.

5.

To demonstrate the knowledge of programming terminology and how to apply Visual Basic (e.g., variables, selection statements, repetition statements, etc.).

To develop a Graphical User Interface (GUI) based on problem description.

To gain knowledge about database connectivity.

To acquire in information about object linking and embedding.

To be able to develop application using Active X controls.

Programme : BCA	Subject : Computer Applications
Course code : 19UCAC41	Course Title : Visual Basic
Category : Cors - 6	Credits : 4
Hours : 4	

Unit	Detailed Syllabus	Outcomes	Hour
1	Getting started with Visual Basic 6.0: Introduction to Visual Basic, Visual Basic 6.0 Programming Environment, Working with Forms, Developing an Application, Variables, Data types and Modules, Procedures and Control Structures, Arrays in Visual Basic, Additional examples.	The Students can 1. Learn to demonstrate the knowledge of programming terminology and how to apply the Visual Basic. 2. Establish an array of variables and refer to individual elements in the array with variable subscripts 3. Coordinate the lists and arrays by using the Item Data property.	12
2	Working with Controls: Introduction, Creating and Using Controls, Working with Control Arrays, Additional examples. Menus, Mouse Events and Dialog Boxes: Introduction, Mouse Events, Dialog Boxes, MDI-Grid controls-Additional examples.	The students can 1. Use the For Each/Next conditions to traverse the array. 2. Learn the use of Message Box function and how to determine the button pressed by the user. 3. Understand the use of list boxes and combo boxes with examples.	12
3	ODBC and Data Access Objects: Evolution of Computer Architectures, Data Access Options, Additional examples. ODBC Using Data Access Objects and Remote Data objects: Open Database Connectivity (ODBC), Remote Data Objects, Additional examples	The students can 1. Understand the evolution of computer architecture and dataaccess. 2. Describe the structure of ODBC, the use and the features of Access objects. 3. Design and implement the applications by using an object-oriented methodology.	12
4	Data Environment and Data Report: Introduction, Data Environment Designer, Data Report, additional examples. Object Linking and Embedding: Introduction, OLE Fundamentals, Using OLE Container Controls, Using OLE Automation Objects, OLE Drag and Drop, Additional examples.	The students can 1. Learn the GUI and Event-driven Programming and Properties. 2. Understand the concepts of Files, Streams and simple database usage. 3. Analyze the concepts of OLE and its controls.	12
5	Built-in Active X Controls: Working with Built - In Active X Controls, creating Controls-Additional examples. Working with Active X Data Objects: An Overview of ADO and OLE DB, ADO Object Model, Additional examples. Files, and File System Controls: Introduction, File System Controls, Accessing Files, Interface with Windows, Additional examples	The students can 1. Learn the creation of Files in VB. 2. Create an executable file that can be run from the Windows environment. 3. Display and the use of Windows common dialog boxes.	12

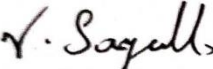
Text Books:

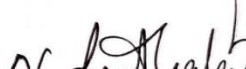
S. No	Title of the Book	Author's	Year(Edn)	Publisher/s
1	Visual Basic 6.0 Programming	Content Development Group	2002(1)	Tata MCGraw-Hill Publication, New Delhi
2	Starting Out with Visual Basic	Tony Gaddis, Kip R. Irvine	2017(7)	Pearson Publications, Chennai

Reference Books:

S. No	Title of the book	Author	Year(Edn)	Publisher/s
1	Microsoft Visual Basic 6.0 Professionals	Michael Halvorson	2012(1)	PHI Publications, New Delhi
2	Visual basic 6 in Record Time	Steve Brown	1998(1)	BPB Publications, New Delhi
3	Programming with Microsoft Visual Basic	Diane Zak	2017(8)	Cengage publications


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UCA-BOS Sri Sarada College for Women (Autonomous), Tirunelveli - 627011SEMESTER IV

Programme :BCA	Subject : Computer Applications	
Course code:19UCAC42	Course Title : Computer Networks	
Category : Core - 7	Credits : 3	Hours: 4

Objectives:

1.
- To conceptualize all the OSI Layers.
2.
- To gain knowledge about transmission medium for communication.
3.
- To understand the concepts of data link layer.
4.
- To use an appropriate network tools to build network topologies.
5.
- To learn about the network security.

Unit	Detailed Syllabus	Outcomes	Hour
1	Uses of Computer Network: Network Hardware. Reference Models: OSI Reference Model-TCP/IP Reference Models Comparison of OSI and TCP/IP - Critique of OSI and Protocols - Critique of the TCP/IP Reference Models.	The Students can 1. Understand the basic computer network technology. 2. Explain the Data Communications System. 3. Identify the different types of network topologies and protocols.	12
2	Physical Layer: Guided Transmission Media – Magnetic Media - Twisted pair- Coaxial cable - Fiber Optics - Wireless Transmission: Electromagnetic Spectrum - Radio Transmission - Microwave Transmission - Infrared and Millimeter waves - Light waves - Communication Satellites - Geostationary, Medium - Earth orbit low earth - orbit Satellites - Satellites versus.	The students can 1. Enumerate the layers of the OSI model and TCP/IP. 2. Identify the different types of network devices and their functions within a network 3. Understand and build the skills of subnetting and routing mechanisms.	12
3	Data Link Layer: Error Detection and Correction - Elementary Data - Link protocols - Sliding window Protocols, Medium - Access Control Sub layer: Multiple Access Protocols - Wireless LANs - Broadband Wireless – Bluetooth.	The students can 1. Basic of computer networks. 2. Understand the OSI Reference Model. 3. Analyze the organizational structure.	12
4	Network Layer: Routing Algorithms Congestion Control Algorithms -Transport Layer: Elements Transport protocols Internet Transport protocols - TCP.	The students can 1. Use of cryptography and security. 2. Specify and identify the deficiencies in existing protocols. 3. Understand Mobiles and Wireless Networks.	12
5	Application Layer: DNS – E – Mail Network Security – Cryptography Symmetric Key Algorithms - Public Key Algorithms - Digital Signature.	The students can 1. Get the working knowledge of datagram and internet socket programming 2. Explain the concept of packet-switching, and identify and analyze the different types of packet delay in packet-switched networks. 3. Obtain the knowledge of using networking tools and how to observe and analyze the behaviors of networking protocols	12

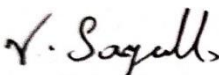
Text Books:

S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Computer Networks	Andrew S. Tanenbaum, Nickolas Feamster	2019(6)	Pearson Education, Uttar Pradesh.
2	Data Communications and Networking	Forouzan	2017(5)	Tata Mcgraw hill publications, New Delhi

Reference Books:

S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Computer Networks	BehrouzForouzan, Firrozmosharra	2011(1)	Tata MC Graw hill publications, New Delhi
2	Computer Networks: A Top-down Approach	Behrouz A. Forouzan, Firouz Musharraf	2012(2)	Tata MC Graw hill publications, New Delhi
3	Computer Networking: A Top-Down Approach	James F. Kurose, Keith W. Ross	2020(8)	Pearson Publications, Uttar Pradesh


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UCA-BOS Sri Sarada College for Women (Autonomous), Tirunelveli - 627011SEMESTER IV

Objectives:

Programme : BCA	Subject : Computer Applications	
Course code :19UCAC43	Course Title : Essentials of E-Commerce	
Category : Core – 8	Credits 1 : 3	Hours: 4

2.
3.
4.
5.
6.
- To design and implement an e-commerce application with a shopping cart.
- To acquire knowledge about infrastructure of E-Commerce.
- To integrate user-centered design guidelines in developing user-friendly websites.
- To learn about the security issues.
- To gain knowledge about E-business.

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction to E-Commerce: Definition, Scope of E-Commerce, Hardware requirements, E-commerce and Trade Cycle, Electronic Markets, Electronic Data Interchange and Internet Commerce.	The Students can 1. Analyze the awareness of ethical, social and authorized aspects of e-commerce. 2. Understand the basic concepts and technologies used in the field of management information systems. 3. Design and implement an e-commerce application with a shopping cart.	12
2	Business to Business E-Commerce: Electronic Markets, Electronic Data Interchange (EDI): Technology, Standards (UN/EDIFACT), Communications, Implementations, Agreements, Security, EDI and Business, Inter-Organizational E-commerce.	The students can 1. Realize the infrastructure for E-commerce. 2. Illustrate the Internet trading relationships including Business to Consumer, Business-to-Business, Intra-organizational. 3. Use and determine the effectiveness of market research..	12
3	Legal issues [5L]: Risks: Paper Document vs. Electronic document, Authentication of Electronic document, Laws, Legal issues for Internet Commerce: Trademarks and Domain names, Copyright, Jurisdiction issues, Service provider liability, Enforceable online contract.	The students can 1. Analyze the legal issues and privacy in E-Commerce. 2. Understand the Development of services and solutions for E-Commerce. 3. Identify the current assessment issues facing Internet commerce.	12
4	Security Issues: Security Solutions: Symmetric and Asymmetric Cryptosystems, RSA, DES, and Digital Signature, Protocols for secure messaging, Secure Electronic Transaction (SET) Protocol, Electronic cash over internet, Internet Security. Business to Consumer E-Commerce: Consumer trade transaction, Internet, Page on the Web, Elements of E-Commerce with VB, ASP,SQL.	The students can 1. Evaluate the advantages and disadvantages of using e-commerce over traditional sales methods. 2. Get knowledge in protocols for security issues. 3. Recognize the strategies of secure electronic transaction protocol.	12
5	E-business: Internet bookshops, Software supplies and support, Electronic Newspapers, Internet Banking, Virtual Auctions, Online Share Dealing, Gambling on the net, E-Diversity, Case studies through internet.	The students can 1. Assess the electronic payment systems. 2. Choose an appropriate email marketing options. 3. Analyze the online marketing strategies	12

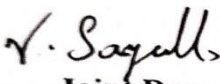
Text Books:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	E Commerce	David Whiteley	2000(1)	Tata Mcgraw hill publications, New Delhi
2	Frontiers of Ecommerce	Ravi Kalakodea	2000(1)	DIANE Publishing, New Delhi

Reference Books:

S. No	Title of the Book	Author's	Year(Edn)	Publisher/s
1	Ecommerce	Bharat Bhaskar	2010(1)	Tata Mcgrawhillpublications,New Delhi
2	E-commerce	Laudon	2018(14)	Pearson Publications, Bangalore
3	E commerce the cutting Edge of business	Kamelesh k, Bajaj	2000(1)	Tata Mcgraw hill publications, New Delhi


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UCA-BOS Sri Sarada College for Women (Autonomous), Tirunelveli - 627011SEMESTER IV

Objectives:

1. To know the fundamentals of operation research.
2. To implement Game theory for various applications.
3. To gain knowledge on inventory management and queuing theory.
4. To utilize PERT and CPM in project management.
5. To know about the queuing models.

Programme : BCA	Subject : Computer Applications		
Course code :19UCAAA41	Course Title : Resource Management Techniques		
Category: To know the fundamentals of operation research.	Credits: 4	Hours: 4	
Unit	Detailed Syllabus	Outcomes	Hour
1	Why Operations Research?: Introduction- origin of operations Research-Definitions of operations Research-characteristics of operations Research-Role of operations Research in decision-making-methods of solving operations research problem-phases in solving operations research problems-Typical Problems in operations Research-Scope of operations Research-Why to Study operations Research.	The students can 1. Understand the basic concepts of operations research. 2. Know the phases of solving operations research problems. 3. Understand the problems in operation research.	12
2	Game Theory: Introduction-Two person Zero sum Games-maximin and minimax Principles-mixed strategies, expected pay-off-solution of 2*2 mixed strategy game-solution Of 2*2 mixed strategy game by the method of oddments-Dominance principle-Graphical Method for solving a 2*n or m*2 game Replacement models: Introduction-Failure of items-Replacement of items that deteriorate-Replacement of items with increasing running cost.	The students can 1. Understand Game theory concepts. 2. Learn strategies in Game Theory. 3. Understand the replacement models.	12
3	Inventory Problems: Introduction-types of inventory costs involved in inventory Problems-Notations-Economic order quantity (EOQ) model with finite Replenishment rate – EOQ mode With shortages – order-Level, Lot- size System – Order-Level Lot-Size system with Finite Replenishment Rate-EOQ model with quantity discounts.	The students can 1. Understand the Inventory problems. 2. Learn EOQ models. 3. Know Order-Level Lot-Size system.	12
4	Project Management: Introduction-origin and use of PERT- origin and use of CPM- Applications of PERT and CPM- Framework of PERT and CPM- Finding the critical path - Project Evaluation and Review Technique(PERT).	The students can 1. Know project management techniques. 2. Find solution for various shortest route problems. 3. Use PERT and CPM in project management.	12
5	Queuing Theory: Introduction-Queuing system – classification of Queuing models- Distribution of Arrivals (The poisson process)- pure Birth process –Distribution of Inter – arrival – time- Distribution of Departures(pure death process)Distribution of service Time – solution of Queuing –model 1(m/m/1):/FCFS):Birth & Death model.	The students can 1. Analyze the concept of queuing system 2. Learn the types of Queuing models. 3. Know the different solving methods of Queuing models.	12

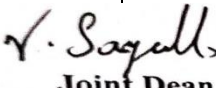
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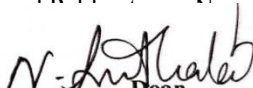
S. No	Title of the Book	Author's	Year(Edn)	Publisher/s
1	Operations Research	Nita H.Shah,Ravi.M.Gor	2013(1)	PHI learning publications, New Delhi
2	Operation Research	P.K.Gupta and D.S Hira	2013(7)	S.Chand Publications, New Delhi

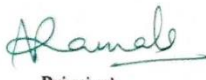
Reference Books:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Operation Research	R.Panneerselvam	2018(2)	Prentice Hall of India, Publications, New Delhi


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Objectives:	Programme : BCA	Subject : Computer Applications	
	Course code : 19UCAS4A	Course Title: Microprocessor	
	Category : Skill Based - 2	Credits : 3	Hours: 4

1.
2.
3.
4.
5.
- To study about microprocessor Architecture.
- To learn about basic 8085 microprocessor and its operations and applications.
- To gain knowledge about data transfer operation.
- To acquire knowledge about counters and delays.
- To do arithmetic manipulations using 8085 processor.

Unit	Detailed Syllabus	Outcomes	Hour
1	Microprocessors, microcomputer and assembly language: Microprocessors – Microprocessors Instruction set and Computer Languages – Computers to single chip microcontrollers. Mention to 8085 assembly language Programming – The 8085 Programming model action Classification – Instruction, data format and storage – How to write, store and execute simple program, Overview of 8085 instruction set.	The Students can 1. Describe architecture of a microprocessor system 2. Understand and classify instruction of 8085 microprocessor 3. To run on 8085 microprocessor based systems	12
2	Microprocessor architecture and micro-computer systems: Microprocessor Architecture and its operations – Memory – Input and Output (I/O) – Eg of a Micro Computer System. Microprocessor Architecture and Memory interfacing: The 8085 MPU – Eg 8085 based microcomputer - Memory interfacing - Interfacing the 8155 memory.	The students can 1. Understand the architecture and operation. 2. Understand the interfacing in 8155 memory 3. Understand and realize the interfacing of memory.	12
3	Data transfer operation: Arithmetic operations – Logic operations – Branch operations - Writing assembling Language– Debugging a program. Programming techniques with additional Instruction: Programming techniques – Counting and Indexing – Additional data transfer and 16 bit arithmetic operations – Arithmetic operations related to memory - Logic operations related to memory - Logic operations – Rotate – Dynamic debugging.	The students can 1. Be able to write assembly language programs 2. Be able to debug the programs for efficient results. 3. Know about the programming techniques.	12
4	Counters and time delays: Counters Time Delays – Hexa decimal counter. Modulo ten counter – Pulse Wave forms – Debugging counter and time Delay programs. Subroutine: Stack – Subroutine – Restart – Conditional call and Return subroutine	The students can 1. be able to debug the counter and time delay programs 2. understand about the subroutine concept 3. have knowledge on pulse wave forms.	12
5	Conversations And Software Simulations: BCD to Binary conversion – Binary to BCD conversion - BCD to seven segment. LED code conversion – BCD addition – BCD Subtraction – Multiplication- Subtraction with carry –Introduction of coding microcontroller using assembly codes & simulator – architecture – features.	The students can 1. understand the concept of BCD to binary conversion 2. learn about binary to BCD conversion and LED code conversions 3. gain knowledge about BCD addition, Subtraction and multiplication operations	12

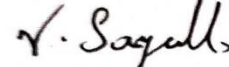
Text Books:

S. No.	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Microprocessor Architecture Programming and Applications with the 8085	Ramesh S.Goanker	2013(6)	Penram International Publisher, Mumbai
2	The 8085 Microprocessor: Architecture, Programming and Interfacing	K.Udayakumar, B.S.UmShankar	2008(1)	Pearson Education, New Delhi

Reference Books and Web Links:

S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	8085 Microprocessor Programming and Interfacing	N.K.Srinath,	2005(2)	PHI Publication, Delhi
2	Microprocessor and Microcontrollers	N.Senthil Kumar, M.Saravanan, S.Jeevananthan	2018(1)	Oxford University Press, Noida
3	www.newbiehack.com			


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Objectives:

1.

To understand the fundamentals of internet.
2.

To understand basic concepts in HTML.
3.

To create basic web pages.
4.

Implement a variety of hyperlinks to connect pages and communicate with users via email link.
5.

To be able to publish webpage.

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction To Internet: Computer is business – networking – internet - e-mail-gopher-world wide web, Internet Technologies – Internet Browsers.	The Students can 1. Know how to use computer in business 2. Learn about the practice and communication on the internetthrough the use of networkingconcepts 3. Gain knowledge about Internet technologies and browsers.	6
2	Introduction To Html: History of HTML - HTML generation and Documents – Tags and Links, Head AndBody Section.	The Students can 1. Understand the history of HTML 2. Know how to use the HTML to develop a web page levels within a webpage 3. Able to create personal or business websites using HTML editor and Insert heading	6
3	Designing Body Section: Ordered And Unordered List – Table Handling.	The Students can 1. Learn how to design tables 2. Use critical thinking skills to designa webpage using tables 3. Able to know table handling and Insert ordered and unordered list in webpage	6
4	Introduction TO DHTML Features Of DHTML: Defining styles – Working with Colors – Text and Fonts with Style.	The Students can 1. know the features of DHTML 2. learn the styles of DHTML 3. be able to work with colours, Textand Fonts.	6
5	FRAMES Frame set Definition: Nested frames – A web design project – forms.	The Students can 1. create webpage using HTML 2. gain knowledge about the frame set and understand the concept of nested frames 3. be able to create link within a web page 4. able to validate and publish a webpage	6

Text Books:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	World Wide Design with HTML	C.XAVIER	2003(1)	TMH Publications
2	HTML and CSS: Design and Build Websites	John Duckett	2011	John Wiley & Sons Publication

Reference Books& Web Links:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Fundamental of the internet and the World Wide Web	Greenlaw andHepp	2003(1)	TMH Publications
2	https://w3schools.com			
3	https://tutorialpoint.com			



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Objectives:

1.

2.

3.

4.

5.

To demonstrate fundamental knowledge of MS Word.

To gain knowledge about creating, saving, opening document and dialog boxes.

To be able to work with text objects and know about internet explorer.

To develop a formal business letter.

To apply MS Word techniques to create promotional hand-outs.

Programme : BCA	Subject : Computer Applications	
Course code: 19NCA4B	Course Title : MS Word 2013	
Category : Non-Major-Elective – 2	Credits 2	Hours: 2

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction to Microsoft Word 2013: Menus – Toolbars – Icons – Multiple Documents	The students can 1. Create a new document. 2. Open, save and print adocument. 3. Edit and format the text.	6
2	Creating a Document in Microsoft Word 2013: – Saving a Document – Opening Document – Dialog Boxes	The students can 1. Change the page layout, background and borders. 2. Insert the headers and footers. 3. Insert and edit the tables.	6
3	Working with tables: Inserting A Column – Rows - Merging the Cells - Splitting the Cells, Charts and Graphics – Mail merge	The students can 1. Insert pictures in documents by using clip art. 2. Practice the mail merge. 3. Share and review the shared document files.	6
4	Additional Commands of Microsoft Word 2013: Inserting a word art – Clipart – Images - Introduction to Internet Explorer.	The students can 1. Get a knowledge of additional commands 2. Work with Text Objects and References 3. Work with illustrations and specialized Documents.	6
5	Menu Commands of Microsoft Word 2013: Types of views – Print layout View - Normal View - Outline View.	The students can 1. Collaborate with other tools and Web Pages 2. Create and modify the document references and Work with drawing objects, graphics large documents. 3. Use online forms. IntegrateWord documents with the Internet.	6

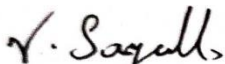
Text Books:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Ms word 2013	FaitheWempen	2015(1)	Que publication, Bangalore
2	Ms Office 2013	Shelly cashmen	2013(1)	Lawpoint publications, West Bengal

Reference Books:

S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Ms office 2000	Gini Courter, Annette Marquls	2000(1)	BPB Publications, New Delhi
2	Office 2000 complete reference	Stephen L.Nelson	2000(1)	Tata McGraw Hill publications, NewDelhi
3	Ms office 2016	Paul Mcfedries	(1) 2016	QUE Publications, Bangalore


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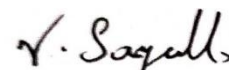

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UCA-BOS Sri Sarada College for Women (Autonomous), Tirunelveli - 627011SEMESTER IV

	Programme : BCA	Subject : Computer Applications	
	Course code :19UCACL41	Course Title : Visual Basic Practicals	
1.	Category : Core Practical-4	Credits : 2	Hours: 4
2.	Design of an analog clock.		
3.	Design of a desktop calculator		
4.	Design of a color Mixer using basic colors.		
5.	Create an application to format text inside a text box.		
6.	Create an application using file controls and use two option buttons to show hide a picture inthe picture box.		
7.	Create an VB application with data types, variants and arrays.		
8.	Write a program in VB to create a notepad		
9.	With the help of VB, create an object of excel application and implement any action on it.		
10.	Create an application to do matrix addition using Flex Grid control.		
11.	Create an Editor with File and Edit menus using Menu Editor Tools.		
12.	Create an MDI application with tile and cascade child forms.		
13.	Design an application to implement OLE drag & Drop		
14.	Write a program for mailing address database in access and view the records using datacontrol		
15.	Create a Student database application using ADO		
	Design a student database in Access and prepare a Report using Data Report control.		


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UCA-BOS Sri Sarada College for Women (Autonomous), Tirunelveli - 627011SEMESTER IV

	Programme : BCA	Subject : Computer Applications
	Course code:19UCAAL41	Course Title : Interactive design using Flash Practicals
1.	Category: Allied Practical - 4	Credits 2 Hours: 4
2.	To create a simple presentation.	
3.	To end a movie clip using script.	
4.	To start a graphics animation at a specific frame.	
5.	To create a Text animation using motion tweening.	
6.	To activate a new window / page using buttons.	
7.	To bounce ball with sound effect.	
8.	To create a scrolling gallery in a page.	
9.	To create a buttons & link with other frames.	
10.	To create an album with the help of buttons.	
11.	To change a shape to another shape.	
12.	To create a masking for a picture.	
13.	To apply mask for text in both directions.	
14.	To apply buttons on animations.	
15.	To apply guide layer to move object in specific path.	
	To create buttons for changing text color.	


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UCA-BOS Sri Sarada College for Women (Autonomous), Tirunelveli - 627011SEMESTER V

OBJECTIVE	Programme : BCA	Subject : Computer Applications
	Course code : 19UDLT41	Course Title : Digital Learning Tools
	Category : Common	Credits : 1
1.	To understand a digital literacy in e-content.	
2.	To know about basic of static and life cycle.	
3.	To gain knowledge learning approaches and strategies.	
4.	To gain knowledge about the various ADO.NET controls and able veto write programs.	
5.	To learn web services	

OUTCOME

1.
- Learn a digital learning in modern technologies
2.
- Know about the e-content of online tools.
3.
- Know about web technology and services.

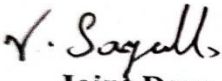
SYLLABUS

Unit-1: E-content: Digital Literacy - Digital Literacy: E- Content- MOOCs Revolution - Differences Between MOOCs and Face to Face Learning- Reformation of Education- Opportunities, Impactsand Challenges
Unit-2: E-Content Development: Basics of Static E-Content Development - Information Collection Strategies - Life cycle of E-Content development - Publishing e-content and Pedagogical Issues –Plagiarism
Unit-3: MOOCs: MOOCs The Skill Gap Fillers - Design Principles- Learning Object Design- OpenEducation Resources-Teaching- Learning Approaches and strategies
Unit-4: Literary Discussion: Recognizing Learner Autonomy-Theoretical Framework of e-Learning- Challenges of MOOC Players- Case Study-Case Study
Unit-5: Integrating e- learning: Continuous Proficiency Development- E-learning Standards- Issues inIndian Context for e-content development

REFERENCE BOOKS:

S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	E-learning fundamentals:a practical guide	Diane Elkins, Desiree Pinder	2015(1)	Alexandria, VA: ATD Press, eBook
2	The Wiley Handbook of Learning Technology	Nick Rushby, Dan Surry	2016	Wiley Handbooks in Education, O-Book


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SEMESTER V

Programme : BCA	Subject : Computer Applications	
Course code : 19UCAC51	Course Title : Software Engineering	
Category : Core - 9	Credits : 4	Hours: 4

Objectives:

1.
- To apply the knowledge on Software models in the real world applications.
2.
- To design and evaluate the performance of software projects.
3.
- To maintain and assure quality of a software system
4.
- To gain knowledge about software testing strategies.
5.
- To get insight of project management concepts.

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction: The Software Process Software and Software Engineering, Software Development Process Models – The Waterfall Model, V-Model, Incremental Process Models, Prototyping, the Spiral Model, Concurrent Models. Software Implementation and Management process- inspection, Agile Development, Principles that Guide Practice	The students can 1. Acquire strong knowledge in developing software process. 2. Get the knowledge of software development process models. 3. Know Software Implementation.	12
2	Modeling and Design Understanding Requirements: Requirements Modeling: Scenarios, Information, and Analysis Classes, Requirements Modeling for WebApps, Design Concepts, Software Architecture : Definition, Importance and Styles, User Interface Design	The students can 1. Learn requirement analysis. 2. Understand software design concepts. 3. Study Software Architecture	12
3	Quality Management Quality Concepts, Review Techniques: Software Quality Assurance, Software Configuration Management: SCM Process, Identification of objects, version and change control, configuration audit, Status Reporting, SCM Standards , Product Metrics	The students can 1. Acquire and apply new knowledge in quality management as needed. 2. Analyze, design, verify, validate, implement, apply, and maintain SCM Process. 3. Apply SCM standards	12
4	Testing Software Testing Strategies: A strategic Approach, Strategic Issues, Unit Testing ,Integration Testing, validation Testing, System Testing, Art of Debugging, Testing Conventional Applications, Testing Object-Oriented Applications, Testing Web Applications	The students can 1. Work in one or more testing strategies and issues. 2. Develop an awareness of the role and responsibilities of the various types of testing. 3. Acquire the skills to think about testing web applications.	12
5	Project Management Project Management Concepts: The Management spectrum- Process and Project Metrics: Measures, Metrics and Indicators, Managing Variation, Estimation for Software Projects, Project Scheduling, Risk Management	The students can 1. Design and communicate ideas about project management concepts. 2. Work with the software projects and scheduling. 3. Study risk management.	12

Text Books:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Software Engineering: A Practitioner's Approach	Pressman R.S	2010(7)	McGraw-Hill, New Delhi
2	Software Engineering	Sommerville	2005(7)	Pearson Education, Bangalore

Reference Books:

S. No	Title of the Book	Author's	Year(Edn)	Publisher/s
1.	Software Quality Theory and Management	Alan Gilies	2009(2)	Lulu, New Delhi
2	Software Engineering	Stephen Schoach.	2008(7)	Tata McGraw Hill, New Delhi
3	Software Engineering, Theory & Practice	Shari Lawrence Pfleeger,	2008(3)	Pearson Education, Bangalore


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UCA-BOS Sri Sarada College for Women (Autonomous), Tirunelveli - 627011SEMESTER V

Objectives:

1.
2.
3.
4.
5.
- To master the basic concepts and appreciate the applications of database systems.
- To master the basics of SQL and construct queries using SQL.
- To be familiar with a commercial relational database system by writing SQL system.
- To know the fundamentals and history of programming language.
- To understand the composite data types.

Unit	Detailed Syllabus	Outcomes	Hour
1	Database Concepts: A Relational approach: Database – Relationships – DBMS– Relational Data Model – Integrity Rules – Theoretical Relational Languages. Database Design: Data Modeling and Normalization: Data Modeling.	The students can 1. Explain the basic concepts of relational data model. 2. Design ER-models to represent simple database application scenarios 3. Improve the database design by normalization.	12
2	Oracle9i: Overview - Personal Databases– Client/Server Databases – Oracle9i and introduction – SQL *Plus Environment – SQL– Logging into SQL *Plus - SQL *Plus Commands– Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - SQL *Plus. Oracle Tables: DDL.	The students can 1. Create tables using sql DDL 2. Develop complex SQL*Plus reports and using SQL*Plusscripts. 3. Specify primary key and foreign key constraints in CREATE TABLE statements.	12
3	Working with Table:–Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows – retrieving Data from Table – Arithmetic Operations – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. Functions and Grouping.	The students can 1. Write SQL aggregation queries involving GROUP BY and HAVING clauses. 2. Collect the Data by using the Group Functions 3. Learn to Restrict and Sort Data	12
4	PL/SQL: A Programming Language: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables– Printing– Arithmetic Operators. Control Structures and Embedded SQL: Control Structures.	The students can 1. Understand the internals of Oracle9i and learn PL/SQL. Describe the features and syntax of PL/SQL 2. Handle runtime errors, describe stored procedures and functions.	12
5	PL/SQL Composite Data Types: Data Types–Strings–Records – Tables – Arrays. Named Blocks: Procedures: Parameter Modes in PL/SQL Programs: Methods of passing parameters– Functions – Packages – Triggers –Data Dictionary Views. PL/SQL Cursors and Exceptions.	The students can 1. Know the explicit and implicit database cursors. 2. Use the advanced features of nested blocks and subprograms. 3. Learn how to handle program exceptions.	12

Text Books:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Database SystemsUsing Oracle (A simplified guide to SQL	Nilesh Shah	2016(2)	Pearson India Education
2	Oracle 9i Complete Reference	Loney Koch	2005(1)	Tata McGraw Hill,New Delhi

Reference Books:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Database Management Systems	ArunMajumdar, Pritimoy	2007(1)	McGraw Hill Education,New Delhi
2	Fundamentals of Database management	Leon, Alexis, Mathews	2014(2)	Vijay Nicole Imprints Private Ltd, Chennai
3	Microsoft SQL Server 2000 Bible	Nielson andPaul	2005(1)	Wiely publishing Inc,NewDelhi


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UCA-BOS Sri Sarada College for Women (Autonomous), Tirunelveli - 627011SEMESTER V

Objectives:

6.
7.
8.
9.
10.
- To understand the .NET programming frame works like ASP.NET.
- To know about fundamentals of creating web forms.
- To gain knowledge about session and cookies.
- To gain knowledge about the various ADO.NET controls and able veto write programs.
- To learn web services.

Unit	Detailed Syllabus	Outcomes	Hour
1	The Net Frame Work: Learning the NET languages – Introduction to ASP.NET and IIS Types, Object and Name Spaces– ASP.NET Application–Building ASP.NET Website	The students can 1. Gain knowledge of using basic .NET constructs. 2. Create ASP.NET application 3. Use the language interfaces, and inheritance easily.	12
2	Web Form Fundamentals: HTML Controls – Web Control – Validation Control – Navigation Control – Data Control – Login Control – CSS – Working with CSS in Web Developer – More Programs.	The students can 1. Use web form fundamentals. 2. Learn the various controls,CSS files for formatting collection, and assemblies. 3. Develop more programs for creating formatting files andfront end tools.	12
3	State Management: Session – View – Query String – Cookies – Tracing – Logging – Error Handling – User Control – ASP.NET Ajax – Example Programs	The students can 1. Gain knowledge on Session and cookies concepts. 2. Analyze the program requirements 3. Design/Develop the programs with GUI interfaces	12
4	ADO.NET: Over view of ADO.NET – ADO.NET architecture -dataset in ADO.NET ADO.NET Access – Data Binding – Data List – DATA Grid and Repeaters – Working with Data Base – Features And advantages of ADO.NET-Sample Programs.	The students can 1. Create code programs and develop interface by using ADO.NET 2. Perform the result using various controls. 3. Demonstrate the fundamental aspects of database programming.	12
5	XML: Using XML – XSD – XSLT – Web Services – Creating Web Services – Using Web Services - Caching – ASP.NET Security.	The students can 1. Design and implement the XML documents. 2. Write applications for web services. 3. Understand the ASP.NET Security concept.	12

Text Books:

S. No.	Title of the Book	Author	Year(Edn)	Publisher/s
1	Asp .Net The Complete Reference	Mathew MacDonald	2013(5)	Prentice Hall of India Private Ltd, New Delhi
2	Asp .Net 2.0 ,Black Book	David Chappell	2009(2)	Kogent Solutions Inc.,New Delhi

Reference Books:

S. No.	Title of the Book	Author	Year(Edn)	Publisher/s
1.	ASP.NET 4.5	O'REILLY, Jesse Liberty, Dan Hurwitz and Brian Mac”	2007(2)	O'REILLY Media ,NewDelhi
2.	Microsoft ASP .NET step by step	Andrew Duthie	2006(2)	Prentice Hall of India, New Delhi
3	Understanding .Net	David Chappell	2006(2)	Addison Wesley Pearson education, Bangalore

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SEMESTER V

Programme : BCA	Subject : Computer Applications	
Course code: 19UCAE51	Course Title : Artificial Intelligence	
Category : Core Elective – 1	Credits : 3	Hours: 4

Objectives:

1.
- To build systems with Artificial Intelligence.
2.
- To know how Artificial Intelligence enables capabilities.
3.
- To get insight of knowledge representations and mapping.
4.
- To understand declarative knowledge and reasoning.
5.
- To apply Artificial Intelligence techniques for problem solving.

Unit	Detailed Syllabus	Outcomes	Hour
1	Problem, Problem Spaces and Search: What is AI? - AI Problems- What is an AI technique – Defining the problem as a state space search – Production system – Production system Characteristics – Problem Characteristics-minimax, alpha-beta pruning.	The students can 1. Experience with AI development tools such as an ‘AI language’ 2. Do the experiment with a machine learning model for simulation and analysis. 3. Explore the current scope, potential, limitations, and implications of intelligent systems.	12
2	Heuristic Search Techniques: Generate and test – Hill Climbing – Best first Search – Problem Reduction – Constraints satisfaction – Means end analysis.	The students can 1. Explain the advantages and disadvantages of various heuristic methods 2. Develop new (hybrid) heuristic methods. 3. Evaluate the quality of the solutions obtained with heuristic methods	12
3	Knowledge Representation: Representations and Mappings – Approaches to Knowledge Representation. Using Predicate Logic: Representing simple facts in logic – Computable functions and Prediction – Resolution – basic of resolution. Resolution in Propositional Logic – The Unification algorithm – Resolution in Predicate Logic.	The students can 1. Apply the knowledge representation, reasoning, and machine learning techniques to real-world problems. 2. Acquire the knowledge of real world Knowledge representation. 3. Understand the fundamental principles of logic-based knowledge representation	12
4	Representing Knowledge Using Rules: Procedural versus – Declarative knowledge – logic Programming – Forward versus Backward Reasoning –Matching- Uncertain Knowledge and Reasoning, Probabilities, Bayesian Networks	The students can 1. Model simple application domains in a logic-based language; 2. Understand the fundamental tradeoffs Understand how the theoretical material.	12
5	Game Playing: The Minimax search procedure – Adding Alpha Beta cut offs – Addition Refinements – Waiting for Quiescence – Secondary Searches – Using Book moves. Expert System:Expert system – Definitions – Basic characteristic of an expert system – Development of Expert system – Knowledge Engineering Stages of Knowledge Acquisition – Expert system application–Eliza DendralMycin Prospector.	The students can 1. Implement the variety of artificial intelligence, machine learning techniques for traditional andmodern computer games 2. Understand the basics of knowledge Engineering and acquisition. 3. Understands the concepts of expert systems	12

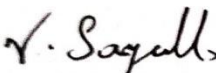
Text Books:

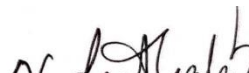
S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Artificial Intelligence	ElainRich and Kevin knight	2017(3)	Tata McGraw Hill, New Delhi
2	Artificial Intelligence and Intelligent System	N.PADHY.	2005(1)	Oxford University, Chennai

Reference Books:

S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Introduction to Artificial Intelligence	RajendraAkeskar	2014(2)	PHI Publications, New Delhi
2	Artificial Intelligence	Kevin Knight, Elaine	2017(3)	McGraw Hill Education,New Delhi
3	Introduction to Artificial Intelligence and Expert	Patterson	2009(1)	PHI Publications, New Delhi


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SEMESTER V

Programme : BCA	Subject : Computer Applications	
Course code: 19UCAE52	Course Title: Essentials of Cloud Computing	
Category : Core Elective – 1	Credits : 3	Hours: 4

Objectives:

1.
2.
3.
4.
5.
- To analyze the Cloud computing setup with its vulnerabilities and applications.
- To apply and design suitable Virtualization concept and Cloud Resource Management.
- To create combinatorial auctions for cloud resources and design scheduling algorithms.
- To gain knowledge about cloud programming and software environments.
- To get insight of cloud services and about Internet of things concepts.

Unit	Detailed Syllabus	Outcomes	Hour
1	Distributed System Models and Enabling Technologies: Scalable Computing over the Internet, Technologies for Network-Based Systems, System Models for Distributed and Cloud Computing, Software Environments for Distributed Systems and Clouds, Performance, Security and Energy Efficiency Computer Clusters for Scalable Parallel Computing: Clustering for Massive Parallelism, Computer Clusters and MPP Architectures, Design Principles of Computer Clusters, Cluster Job.	The students can 1. Design and implement the distributed applications. 2. Demonstrate the knowledge of main underlying components and distributed systems (such as RPC, file systems); 3. Use and apply important methods in distributed systems to support scalability and fault tolerance;	12
2	Cloud Platform Architecture over Virtualized Data Centers: Cloud Computing and Service Models, Data Center Design and Interconnection Networks, Architectural Design of Compute and Storage Clouds, Public Cloud Platforms GAE, AWS, and Azure, Inter-cloud Resource Management, Cloud Security and Trust Management	The students can 1. Choose the appropriate technologies, algorithms, and approaches for the related issues. 2. Identify the problems, explain, analyze, and evaluate the various cloud computing solutions. 3. Provide the appropriate cloud computing solutions and recommendations according to the applications used.	12
3	Service-Oriented Architectures for Distributed Computing: Services and Service-Oriented Architecture, Message-Oriented Middleware, Portals and Science Gateways, Discovery Registries, Metadata and Databases, Work-flow in Service-Oriented Architectures	The students can 1. Apply SOA technologies to enterprise domain. 2. Design and analyze the various SOA patterns and techniques. 3. Compare and evaluate the best strategies and practices of SOA	12
4	Cloud Programming and Software Environments: Features of Cloud and Grid Platforms, Parallel and Distributed Programming Paradigms, Programming Support of Google App Engine, Programming on Amazon AWS and Microsoft Azure, Emerging Cloud Software Environments.	The students can 1. Apply and design suitable Virtualization concept. 2. Create combinatorial auctions for cloud resources. 3. Assess cloud Storage systems.	12
5	Ubiquitous Clouds and the Internet of Things: Cloud Trends in Supporting Ubiquitous Computing, Performance of Distributed Systems and the Cloud, Enabling Technologies for the Internet of Things, Innovative Applications of the Internet of Things, On-line Social and Professional Networking-Cloud Services- Infrastructure as a Service (IaaS)-Platform as a Service (PaaS)-Software as a Service (SaaS).	The students can 1. Analyze the various protocols for IOT 2. Develop web services to access/control IOT devices. 3. Deploy an IOT application and connect to the cloud.	12

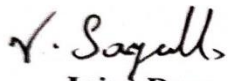
Text Books:

S. No	Title of the Book	Author's	Year(Edn)	Publisher/s
1	Cloud Computing , A Practical Approach	VelteJ. Anthony Toby ,Elsenpeter Robert	2007(1)	McGraw Hill Education, New Delhi
2	Cloud Computing	Miller Michel	2008(1)	Pearson Education, New Delhi

Reference Books:

S. No	Title of the Book	Author's	Year(Edn)	Publisher/s
1	Cloud Computing A Hands-on Approach	ArshdeepBahga, Vijay Madiseti	2014(1)	University Press, New Delhi
2	Enterprise Cloud Computing	GautamShroff	2010(1)	Cambridge University Press, New Delhi
3	Enterprise Cloud Computing	GautamShroff	2010(1)	Cambridge University, New Delhi


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SEMESTER V

SEMESTER V		
Programme : BCA	Subject : Computer Applications	
Course code: 19UCAE53	Course Title : Cyber Security	
Category : Core Elective- 1	Credits : 3	Hours: 4

Objectives:

- To describe different classes of attacks.
- To describe new and emerging IT and IS technologies.
- To analyze threats and risks within context of the cyber security architecture
- To acquire knowledge about security implementation and aspects.
- To understand the credentials of information security.

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction to Information Security: Introduction – The History of Information Security – What is Security – Critical Characteristics of Information – NSTISSC Security Model – Components of an Information System – Securing Components – Balancing Information Security and Access – Approaches to Information Security Implementation.	The Students can 1. Know the basics of information security. 2. Understand the approaches of implementing information security. 3. Know the need for security.	12
2	Risk Management & Planning: Introduction – An overview of Risk Management – Risk Identification – Risk Assessment – Risk control Strategies – Selecting a Risk control Strategy – Quantitative versus qualitative risk control practices - Risk Management Discussion Points – Recommended Risk Control Practices. Planning for Security: Introduction – IS Policy, Standards and Practices.	The Students can 1. Learn the risk management basics. 2. Understand risk management policy, standards and practices. 3. Know the firewalls andVPNs.	12
3	Security Technology: Intrusion Detection, Access Control And Other Security Tools: Introduction – Intrusion Detection and Prevention System– Honey Pots, Honey Nets and Padded Cell Systems – Scanning and Analysis Tools – Access Control Devices. Cryptography: Introduction – Foundations of Cryptology – Cipher Methods – Cryptographic Algorithms – Cryptographic Tools.	The Students can 1. Learn Intrusion Detection and prevention. 2. Know scanning and analysis tools. 3. Understand Cryptography.	12
4	Security Implementation Physical Security: Introduction – Physical Access Controls – Fire Security and Safety – Failure of Supporting Utilities and Structural Collapse – Interception of Data – Mobile and Portable Systems – Special Considerations for Physical Security Threats. Implementing IS: Introduction – IS Project Management – Technical Topics of Implementation.	The students can 1. Understanding physical security. 2. Know about security threats. 3. learn technical and non-technical implementation of information security	12
5	Security and Information Security and Personnel: Introduction – Positioning & Staffing the Security Function – Credentials of Information Security Professionals – Employment Policies and Practices – Security Considerations for Nonemployees – Internal Control Strategies – Privacy and the Security of Personal Data. IS Maintenance: Introduction – Security Management Models.	The students can 1. Learn security and personnel. 2. Understand Employment Policies and Practices. 3. Know the Security Management Models and Maintenance Model.	12

Text Books:

S. No	Title of the Book	Author's	Year(Edn)	Publisher/s
1	Principles and Practices of Information Security	Dr Michael E. Whitman, CISM, CISSP Herbert J. Mattord, CISM, CISSP	2010(4)	Cengage Learning India Private Limited, New Delhi
2	Cyber Security	Nina Godbole and Sunit Belapur	2011(1)	Wiley, New Delhi

Reference Books& Web Links:

S. No	Title of the Book	Author's	Year(Edn)	Publisher/s
1	Information Security and Cyber Laws	Gaurav Gupta and Sarika Gupta	2019(1)	Khanna Publishing, New Delhi
2	Cyber Security Policy Guidebook	Jennifer L. Bayuk , Jason Healey , et al.	2017(1)	Wiley, New Delhi
3	www.tutorialpoint.com			

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SEMESTER V

Programme : BCA	Subject : Computer Applications	
Course code : 19UCAE54	Course Title : Multimedia	
Category : Core Elective – 1	Credits : 3	Hours: 4

- Objectives:**
1.

To define the principles, characteristics and forms of Visual Design in Multimedia Development.
2.

To gain knowledge about multimedia hardware and communication devices.
3.

To define the role of Visual Reading Elements.
4.

To learn how to use multimedia software.
5.

To learn to use the tools in multimedia

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction to Multimedia: Elements of Multimedia System - Categories of Multimedia - Features of Multimedia - Applications of Multimedia System - Convergence of Multimedia System - Stages of Multimedia Application Development - Text: Multimedia Building blocks..	The Students can 1. Understand the basics of Multimedia. 2. Learn the elements of Multimedia. 3. Know the text element in Multimedia.	12
2	Multimedia Hardware: Connecting Devices - SCSI MCI - IDE – USB - Multimedia Hardware – Storage Devices: Memory and Storage Devices - Multimedia Storage – Optical Devices: Introduction - CD-ROM Logical formats of CD-ROM - DVD - DVD disc capacity - DVD recordable and rewritable - Security in DVD Competitors and successors to DVD - Multimedia Hardware.	The Students can 1. Knowing the multimedia connecting devices. 2. Understand Memory Storage Devices. 3. Learn the Multimedia input devices	12
3	Multimedia Workstation Contents: Communication Architecture - Hybrid Systems - Digital System Multimedia Workstation - Documents, Hypertext, Hypermedia Contents - Introduction - Documents Hypertext - Hypermedia - Hypertext and Hypermedia - Hypertext, Hypermedia and Multimedia - Hypertext and the World Wide Web - Document Architecture and MPEG Contents.	The Students can 1. Understand multimedia workstation. 2. Learn Hypermedia and Multimedia. 3. Obtain knowledge in interactive Multimedia.	12
4	Basic Tools for Multimedia Objects Contents: Text Editing and Word Processing Tools - OCR Software - Image editing tools - Painting and drawing tools -Sound editing tools - Animation, Video and Digital Movie Tools - Linking Multimedia Objects, Office Suites Contents - OLE - DDE - Office Suites - Components available in Office Suites - Currently available Office Suites - Comparison of Office Suite.	The Students can 1. Understand the tools of Multimedia. 2. Learn to link Multimedia objects. 3. Know the office suites and presentation tools.	12
5	User Interface Contents: User interfaces - General design issues - Effective Human Computer Interaction - Video at the user interface - Audio at the user interface User friendliness as the primary goal - Multimedia Communication Systems: Application subsystem Collaborative computing - Collaborative dimensions Group communication Architecture - Application sharing approach.	The Students can 1. Learn to build user interface. 2. Understand Multimedia Communication. 3. Able to know communication Architecture.	12

Text Books:

S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Multimedia: Computing Communications & Applications	Ralf Steinmetz	2009(6)	Pearson Education India, NewDelhi
2	Multimedia Storage and Retrieval: An Algorithmic Approach	Jan Korst, VerusPronk	2005(6)	Wiley, New Delhi

Reference Books& Web Links:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Multimedia An	John Villain,	1997(1)	Prentice –Hall/Macmillan, New
2	Multimedia: Making it	TayVaughan	2004(6)	Tata McGraw Hill Education,
3	www.tutorialpoint.com			


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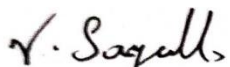

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SEMESTER V		
Programme : BCA	Subject : Computer Applications	
Course code:19UCACL51	Course Title : Advanced Database Management Systems Practicals	
Category : Core Practical-5	Credits : 2	Hours: 5

1. Develop an employee database with tables department, employee details, address, pay details and Project details.
After the tables and add constraints relevant to the fields in the tables. Insert Records into all the tables.
2. Develop queries to retrieve relevant information from table.
3. Create table from the existing tables. Create views from the tables.
4. Develop queries to retrieve information from more than one table. Develop summaryqueries to retrieve relevant information from the table.
5. Create a partition table and query the records.
6. Create a table with abstract data type and query the records.
7. Create PL/SQL program to print multiplication table.
8. Develop a PL/SQL program to check whether a given string is palindrome or not.
9. Create a PL/SQL program to print student details using report.
10. Implement a procedure to calculate electricity bill (use cursor).
11. Create PL/SQL program to perform updation using various triggers.
12. Develop a PL/SQL program to find factorial of numbers using function and procedure.
13. Create a program a) Implicit Cursor b) Explicit Cursor c) Nested Cursor
14. Create a program to calculate the electricity bill.
15. Create a program to find total purchase & total sale.


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SEMESTER V

Programme : BCA	Subject : Computer Applications	
Course code : 19UCACP52	Course Title : Computer Applications for Competitive Examination and Project	
Category : Project	Credits : 6	Hours: 6

During this semester the students are expected to do literature survey, formulate the problem and form a methodology of arriving at the solution of the problem. Also during this semester the students are expected to complete the project and submit a full-fledged report comprising of the complete system developed along with implementation and test results. The departmental committee shall examine the students for 100 marks and the evaluation is based on continuous internal assessment comprising of three reviews.

Internal Assessment Component	Marks
I Review	10
II Review	10
Final Review	10
Report	20
Total	50

A Vivo-voce will be conducted by External Examiners andthe marks shall be contributed as per the under mentioned components.

External Assessment Component	Marks
Presentation and Execution	20
Report	20
Viva-Voce	10
Total	50


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Competitive Exam for Computer Applications

Objectives:

1.
- Allow students to utilizes problem solving skills.
2.
- To provide detailed knowledge about core subjects.

Unit	Detailed Syllabus
1	Discrete Structures and Optimization Mathematical Logic: Propositional and Predicate Logic, Propositional Equivalences, Normal Forms, Predicates and Quantifiers,Nested Quantifiers, Rules of Inference.
2	Sets and Relations: Set Operations, Representation and Properties of Relations, Equivalence Relations, Partially Ordering. Counting, Mathematical Induction and Discrete Probability: Basics of Counting, Pigeonhole Principle, Permutations and Combination.
3	Basic Computer Organization and Design: Stored Program Organization and Instruction Codes, Computer Registers, Computer Instructions, Timing and Control, Instruction Cycle, Memory-Reference Instructions, Input-Output, Interrupt. Programming the Basic Computer: Machine Language, Assembly Language, Assembler, Program Loops, Subroutines, Input-Output Programming.
4	Normalization for Relational Databases: Functional Dependencies and Normalization; Algorithms for Query Processing and Optimization; Transaction Processing, Concurrency Control Techniques, Database Recovery Techniques, Object and Object-Relational Databases; Database Security and Authorization.
5	Memory Management: Contiguous Memory Allocation, Swapping, Paging, Segmentation, Demand Paging, Page Replacement, Allocation of Frames, Thrashing, Memory-Mapped Files. Storage Management: Mass-Storage Structure, Disk Structure, Scheduling and Management, RAID Structure.

Text Book:

S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Trueman’s UGC NET Computer Science and Applications	Sanjay Singhal and Sameer Mishra	2018	Danika Publishing Company



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Objectives:

Programme : BCA	Subject : Computer Applications
Course code : 19UCAC61	Course Title : Operating System
Category : Core - 12	Credits : 4
Hours: 4	

1.

2.

3.

4.

5.

To master structures and functions of operating systems.

To understand the concept of scheduling.

To be familiar with multithreading concepts and dead lock prevention.

To master concepts of memory management including virtual memory.

To learn the file concept and access methods.

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction: What is an operating system; Mainframe Systems-Desktop System-Multiprocessor Systems-Distributed Systems-Clustered System	The students can 1. Know about the fundamentals. 2. Know about different types OS. 3. Learn about the Core Paper-components.	12
2	Process: Process Concept-Process Scheduling-Operations on Processes-Co-operating Processes-Inter Process Communication. CPU Scheduling- Basic Concepts-Scheduling Criteria-Scheduling Algorithms-Multiprocessor Scheduling-Real time Scheduling-Algorithm Evaluation.	The students can 1. Explain the concept of a process and the Process Control Block 2. Learn the mechanisms of OS to handle processes. 3. Describe the states and state transitions during the whole lifetime of a process.	12
3	Process Synchronization: Background-the Critical Section problem-Synchronization Hardware-Semaphores-Classical problems of Synchronization-Critical Regions-Monitors-Atomic Transactions. Deadlocks: System Model-Deadlock Characterization-Methods of handling deadlocks-Deadlock prevention- Deadlock Avoidance-Deadlock Detection- Recovery from deadlock.	The students can 1. Gain knowledge on distributed operating system concepts that includes architecture, mutual exclusion algorithms, deadlock detection algorithms and agreement protocols 2. Know the components and management aspects of concurrency management 3. Understand and analyze the theory.	12
4	Memory Management: Background- Swapping-Contiguous Memory Allocation- Paging-Segmentation-Segmentation with paging. Virtual Memory: Background-Demand Paging-Page Replacement-Allocation of Frames.	The students can 1. Study the layered structure of input/output software. 2. Know the principles of paging virtual memory (vm) 3. Understand how virtual memory of physical memory	12
5	File System Interface: File Concept-Access Methods-File System Structure-File System Implementation-Directories Structure-Directory Implementation-Allocation Methods-Free Space Management.	The students can 1. Know how the data structures of the UNIX. 2. Learn in detail how a system call is made and returns. 3. Understand and analyze the theory.	12

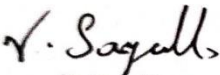
Text Books:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Operating system concepts	Abraham Silverschatz	2001(6)	Addition Wesley publication, New Delhi
2	OS Internal and design principles	William stallings	2003(5)	PHI PublicationsNew Delhi
3	OS Design & Implementation	Andrew S.Tanennbam	2005(3)	Prentice Hall of India Publications, New Delhi

Reference Books and Web Links:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	OS Concept	Silberschatz Galvin	2010(8)	Johnwiley, New Delhi
2	OS	MilianMilenkovice	2003(1)	Tata Mcgraw hill publications,
3	www.w3schools.com			


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UCA-BOS Sri Sarada College for Women (Autonomous), Tirunelveli - 627011SEMESTER VI

Programme : BCA	Subject : Computer Applications	
Course code : 19UCAC62	Course Title : Computer Graphics and Multimedia	
Category : Core - 13	Credits : 3	Hours: 4

Objectives:

1.
- To understand the concepts and fundamentals of computer graphics.
2.
- To gain knowledge about scan conversion methods.
3.
- To understand the two dimensional and three dimensional transformations.
4.
- To enhance the perspective of modern computer system with modeling 2D and 3D visual.
5.
- To understand interactive animation using multimedia tools and gain knowledge ofmultimedia.

Unit	Detailed Syllabus		Hour
1	Introduction: Application and Operations of Computer Graphics – Graphics Packages – Requirements of a Graphical System – GUI. Input Output Devices: Common input Devices – Graphical Output Devices – Raster Scan Video Principle – Raster Scan CRT Monitors – Color Raster Scan System – Plasma Display – LCD – Hard Copy Raster Devices.	The students can 1. Apply mathematics and computer programming. 2. Get the knowledge to graphics system. 3. Identify, evaluate and solve technical problems	12
2	Scan Conversion: Methods – Polynomial Method – DDA algorithms for line drawing Algorithm- Circle- Ellipse- Parabola – Bresenham’s Line Drawing Algorithm- Bresenham’s Circle Drawing Algorithm Problem of Scan Conversion – Solid Areas Odd Even Methods.	The students can 1. Knowledge and technical skills. 2. Get knowledge about algorithms. 3. Gain knowledge in solid filling..	12
3	Two Dimension Transformation: Transaction – Scaling – Rotation- Transformation of Points and Objects – Homogenous Coordinate System and Transformations – Reflection – Sheering – Three Dimension Transformations – Translation – Scaling – Rotation – Reflection – Shearing.	The students can 1. Fit the objects as per the picture definition. 2. Learn the basic principles of Two- dimensional computergraphics. 3. Learn the basic principles of Three- dimensional.	12
4	2DViewing and Clipping: Windows and View Ports – Viewing – Transformations – Clipping of lines in 2D – Cohen Sutherland Clipping Algorithms – Visibility – Midpoint Sub-division method – Parametric Clipping – Polygon Clipping – Sutherland Hodgeman Algorithm – Clipping against Concave Windows – Hidden Surface – Elimination – Black Face Removal Algorithm Z buffer	The students can 1. Get an understanding of how to scan convert the basic geometrical primitives, how to transform the shapes 2. Develop programming skills in 3D. 3. Understand the Clippingconcepts.	12
5	Concept of Multimedia: Types- Data Steams - Applications – Authoring digital Audio – MIDI –Image Compression – Video compression – Graphic File Formats BMP – GIF – JPEG – TIFF – PNG.	The students can 1. Understand the multimedia concepts. 2. Develop the multimedia applications. 3. Know the application of computer graphics concepts in the development of computer games, information visualization, and business applications.	12

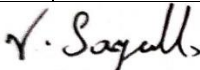
Text Books:

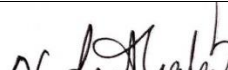
S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Computer Graphics Multimedia and Animation	Malay K.Pakira	2008(1)	PHI Learning Publication, New Delhi
2	Computer Graphics secrets & Solutions	John carriyam	2003(1)	BPB Publications, New Delhi

Reference Books:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Multimedia Systems	John Aggressive Kolget Buford	2000(1)	ACM Press Publications, Maharashtra
2	Multimedia Making it work	TayVaugham	2014(9)	Tata Mcgraw hill publications, New Delhi
3	Computer Graphics	Donald Hearn Pauline Baken	2003(2)	Prentice Hall of India


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Objectives:

1.

2.

3.

4.

5.

To understand the basics of data mining and its techniques.

To gain knowledge about association rule mining.

To design and deploy classification.

To understand the concept of clustering techniques.

To discover knowledge in web mining and data mining applications.

Programme : BCA	Subject : Computer Applications	
Course code :19UCAC63	Course Title : Data Mining	
Category : Core - 14	Credits : 4	Hours: 6

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction: What is Data Mining - Why Data Mining Now - The Data Mining Process - Data Mining Applications - Data Mining Techniques – Some Data Mining Can Studies – The Features of Data Mining – Guidelines for Successful Data Mining – Data Mining Software	The students can 1. Introduce the concept of data mining. 2. Identify the sources of data and the process for data mining 3. Get well versed knowledge in all data mining algorithms	12
2	Association Rule Mining: Introduction – Basics – The Task and Naïve Algorithm – The Apriori Algorithm – Improving the Efficiency of the Apriori Algorithm – Mining Frequent Pattern without Candidate Generation – Performance Evaluation of Algorithm – Software of Association Rule Mining.	The students can 1. Gain knowledge of association rule mining. 2. Gain knowledge on Apriori algorithm. 3. Get knowledge in performance evaluation of algorithms.	12
3	Classification: Introduction – Decision Tree – Building a Decision Tree - The Tree Introduction Algorithm – Split Algorithm Based on the Information Theory – Decision Tree Rules – Decision Tree Summary – Native Bayes Method – Other Evaluation Criteria for Classification Methods – Classification Software.	The students can 1. Understand the importance of the classification algorithms in data mining. 2. Learn various classification algorithms. 3. Perform exploratory analysis of Classification Methods.	12
4	Cluster Analysis: What is cluster Analysis – Desires Features of Cluster Analysis – Types of Data – Computing Distance – Types of Cluster Analysis Methods – Partitional Methods – Hierarchical Methods – Dealing with Large Databases – Cluster Analysis Software.	The students can 1. Implement the appropriate clustering algorithms on large data sets. 2. Define and apply metrics to measure the performance of various clustering algorithms. 3. Understand the cluster analysis software.	12
5	Web Data Mining: Introduction – Web Technology and Characteristics – Locality and Hierarchy in the Web – Web Content Mining – Web Usage Mining – Web Structure Mining – Web Mining Software-Datamining tools: Rapid miner-Weka-KNIME-Orange—SQL server Data tools(SSDT).	The students can 1. Know about Web Data Mining. 2. Introduce the concept of web data mining. 3. Understand the web mining software.	12

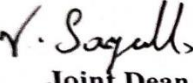
Text Books:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Introduction to Data Mining with CaseStudies	G.K.Gupta	2012(2)	PHI Publications, NewDelhi
2	Data Warehousing,Data Mining and OLAP	Berson,Aley	2012(1)	PHI Publications, NewDelhi

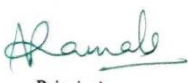
Reference Books:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Data Mining Concepts& Technologies	Jiawei Han-Michelinekamber	2005(2)	PHI Publications, NewDelhi
2	Data Mining	Vikrampudi- P.Radha Krishnan	2009(1)	Oxford University press publications, Chennai
3	Data Mining – Introductory andadvanced topics	Dunham,Marsareth	2013(1)	Pearson education ,Bangalore


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Objectives:

Programme : BCA	Subject : Computer Applications	
Course code :19UCAE61	Course Title : Software Testing	
Category : Core Elective- 2	Credits : 3	Hours: 4

To understand the principle of testing.

To gain knowledge about the testing methods.

To enhance the various test processes and continuous quality improvement.

To understand the types of errors and fault models.

To understand the methods of test generation from requirements.

Unit	Detailed Syllabus	Outcomes	Hour
1	Principles of Testing: Software life cycle development models – Phase of Software Project – Quality- QA-QC – Testing- Verification- Validation – Process Model – Life cycle Models.	The students can 1. Discuss the various software testing issues. 2. Learn how to plan a test project. 3. Understand the life cycle models.	12
2	White box testing: Static Testing: Static testing by humans – Static analysis Tools - Structural testing: Unit / code functional Testing – Code coverage Testing – Code Complexity Testing - Challenges in Whit box Testing – Black box testing – Integration testing.	The students can 1. Describe the solutions in software testing. 2. Learn to manage software problems and defects and generate a testing project. 3. Expose component based software.	12
3	System Testing: Overview: Functional versus Non Functional Testing – Functional system Testing –Non Functional Testing -Acceptance testing – Acceptance criteria - Selecting Testcases – Executing Acceptance Testing – performance – Regression testing.	The students can 1. Learn to design test cases and data, and conduct testing operations. 2. Gain software testing experience. 3. Understand software test automation problems and solutions	12
4	Internationalization testing: Primer – Test phases – Enabling Testing – Locale Testing – Fake language Testing – Localisation Testing – Language Testing –Tools – Ad hoc Testing – Testing of object oriented systems.	The students can 1. Gain the techniques and skills testing tools to support software testing projects 2. Expose the advance software testing. 3. Understand the use of Internationalization testing.	12
5	Test planning: Management- Execution and reporting – Software test automation – What to Automate? – Scope of Automation – Design and Architecture for Automation – Generic Requirement for Test/Tool framework Selecting a Test Tool - Challenges in Automation - Test metrics and measurements.	The students can 1. Apply the software testing 2. Design and conduct a software test process for a software testing project 3. Learn how to write software testing	12

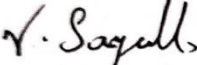
Text Books:

S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Software Testing Principles and practices	SrinivasanDesikan, GopalsamyRames	2012(1)	Pearson publications, Bangalore
2	Software Testing Principles and practices	Nareshchauhan	2010(1)	Oxford University press, New Delhi

Reference Books:

S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Foundation of Software Testing	AdityaP.Mathur	2011(1)	Pearson publications, Bangalore
2	Software Engineering	K.K.Agerwall, Yogeshsingh	2000(3)	New Age International publications Pvt ltd,
3	Introduction to Software Testing	Paul Ammann	2009(1)	Cambridge university press, Kerala


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Objectives:

1.
2.
3.
4.
5.
- To understand the fundamentals of digital image processing and MATLAB.
- To get exposure about image enhancement techniques.
- To understand the concepts of image restoration, and image interpretation.
- To gain knowledge about edge detection and image segmentation.
- To get insight of Image compression.

Programme : BCA		Subject : Computer Applications	
Course code: 19UCAE62		Course Title : Basics of Digital Image Processing	
Category : Core Elective - 2	Credits : 3	Hours: 4	
To understand the fundamentals of digital image processing and MATLAB.			
To get exposure about image enhancement techniques.			
To understand the concepts of image restoration, and image interpretation.			
To gain knowledge about edge detection and image segmentation.			
To get insight of Image compression.			
Unit	Detailed Syllabus	Outcomes	Hour
1	Elements of digital image processing systems: Vidicon and Digital Camera working principles - Elements of Visual Perception - brightness, contrast,hue, saturation - Color Image fundamentals – RGB, HIS models – Image Sampling – Quantization.	The students can 1. Learn the fundamental concepts of a digital image 2. Analyze the general terminology of digital image processing. 3. Understand the Elements of Visual Perception	12
2	Histogram equalization and specification techniques: Noise distributions – Spatial averaging - Directional smoothing – median, geometric mean, Harmonic mean, Contra harmonic mean filters – Homomorphic filtering.	The students can 1. Understand the rapid advances in Machine vision. 2. Evaluate the methodologies for image enhancement. 3. Examine the various types of images.	12
3	Image Restoration: Degradation model – Unconstrained restoration – Lagrange multiplier and constrained restoration – Inverse filtering – removal of blur caused by uniform linear motion – Wiener filtering.	The students can 1. Learn different techniques employed. 2. Implement the various restoration models. 3. Apply the image filtering to remove blurs.	12
4	Edge detection: Edge linking via Hough transform - Thresholding – Region growing – Region splitting and merging – Segmentation by basic concepts – Dam Construction – Watershed segmentation algorithm.	The students can 1. Interpret the image segmentation. 2. Understand the need for image segmentation 3. Learn various image segmentation algorithms.	12
5	Need for data compression: Huffman, Run Length Encoding, Shift codes, Arithmetic coding, Vector Quantization, Transform coding, JPEG standard, MPEG	The students can 1. Learn the need for image compression. 2. Interpret Image compression standards. 3. Apply image processing algorithms.	12

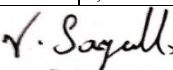
Text Books:

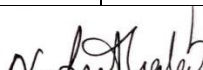
S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Digital Image Processing	Kenneth R. Castleman	2006(1)	Pearson Education ,Bangalore
2	Fundamentals of Digital Image Processing	Anil K. Jain	2002(1)	Pearson Education ,Bangalore

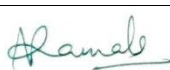
Reference Books:

S. No	Title of the book	Author's	Year(Edn)	Publisher/s
1	Digital Image Processing using MATLAB	Rafael C. Gonzalez, Richard E. Woods, Steven Eddins	2004(1)	Pearson Education, Bangalore
2	Digital Image Processing	William K. Pratt	2002(1)	John Wiley, New Delhi
3	Digital Image Processing	S. Esakkirajan, S. Jeyaraman, T. Veerakumar	2015(1)	TMH,


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UCA-BOS Sri Sarada College for Women (Autonomous), Tirunelveli - 627011SEMESTER VI

Programme : BCA	Subject : Computer Applications	
Course code :19UCAE63	Course Title : Mobile Communication	
Category : Core Elective – 2	Credits : 3	Hours: 4

Objectives:

1.
- To gain knowledge about the fundamentals of mobile communication.
2.
- To get insight of mobile communication standards.
3.
- To learn about the cordless mobile communication systems.
4.
- To understand the concept of interferences in cellular mobile communication.
5.
- To know about the concepts used in WLL.

Unit	Detailed Syllabus	Outcomes	Hour
1	Mobile Communication: Need for Mobile Communication – Requirements of Mobile Communication – History of Mobile Communication – Properties of Wireless Medium – Radio Propagation – Propagation Coverage Calculation.	The students can 1. Apply the working, characteristics and limitations of mobile communication. 2. Understand the impact of mobile communication. 3. Know the concept and the properties of wireless medium	12
2	Mobile Communication Standards: First generation Wireless Networks – Second generation Wireless System – Third generation and Beyond Wireless Systems – Implementation Organization – Regional Organization – Global Organization – Global System for Mobile communication.	The students can 1. Learn various generations of Wireless networks. 2. Understand and identify the software model for mobile computing. 3. Interpret CDMA technology.	12
3	Cordless Mobile Communication System: Cordless Telephone Home – Multichannel Cordless Telephone System – Wireless Private Box Exchange History of Data networks.	The students can 1. Discuss the cordless mobile communication system design 2. Analyze the data networks 3. Analyze the architecture of CDPD	12
4	Interferences in Cellular Mobile Communication: Nature of Co- Channel Interference – Measurement of Co- Channel Interference - Measurement of Co- Channel Interference with mobile Unit – Frequency Reuse - Co- Channel Interference Omni directional Radiation.	The students can 1. Gain knowledge on Cellular Mobile 2. Analyze the channel interference reduction 3. Know about the nature and design of course channel interference	12
5	Components in WLL: Problems in WLL – Modern Wireless Local Loop – Local Multipoint Distribution Service (LMDS)- Properties of WAP – Beater Services- Wireless Datagram Protocol (WDP)- Wireless Transport Layer Security(WTLS)-WAP Transaction Protocol(WTP) – WSP	The students can 1. Gain knowledge on wireless local loop and various protocols 2. Analyze the local multipoint distribution service 3. Know about the microcellular communication	12

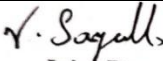
Text Books:

S. No.	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Wireless and Mobile Communication	T.G. Palanivelu, R.Nakkeeran	2009(1)	PHI Learning private Limited
2	Mobile computing Technology,applications and service creation	AsokeTelukder, Hasan Ahmed, Roopa R Yavagal	2017(1)	McGrawHillEducation

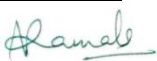
Reference Books:

S. No	Title of the Book	Author’s	Year(Edn)	Publisher/s
1	Wireless Communication and Networking made simple	Prof.Satish Jain Vineeta Pillai	2007(1)	BPB Publications
2	Wireless and Cellular Telecommunications	William C.Y.Lee	2006(1)	McGrawHill publication
3	Wireless and Cellular Telecommunication	KousgikSinha,SasthiC.Ghosh,Bhabani	2016(1)	Chapman andHall/CRC


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Objectives:

1.
2.
3.
4.
5.
- To gain knowledge about android basics.
- To get insight of adapter and view holder.
- To learn about the android scheduling task.
- To understand the concept of android app in android studio.
- To get insight of android virtual device.

Programme : BCA	Subject : Computer Applications	
Course code : 19UCAE64	Course Title : Android Studio	
Category : Core Elective-2	Credits : 3	Hours: 4

Unit	Detailed Syllabus	Outcomes	Hour
1	Android Overview: Android Basic Blocks -Basic UI Elements-Strings.xml& message -localization-Resources and Asset Files-Gradle Dependencies-Android Broadcast Intent and Broadcast Receiver-Debugging-Working with my App-Persisting Application State	The students can 1. Gain knowledge of on the basic concepts of Android 2. Know about the resources and asset files in Android 3. Able to debug and work with Android application	12
2	Introduction: Recycler view, Adapter & View Holder-Fragments-Material Design Elements-Navigation-Testing with Espresso-Working with my App-Adding Views Dynamically-Building Layouts for screen configuration changes-Working with Custom Styles & Themes-Android Hierarchical Navigation - Threading and Handlers-AsyncTask vs. Java Thread	The students can 1. Understand the testing with Espresso 2. Gain knowledge about Threading and Handlers. 3. Able to work with custom styles and themes	12
3	Loaders: Async Task Loader & Cursor Loader-Background Services-Android Scheduling task-Working with my App-Access Files in Assets-Access Resources-Save Data and Files-SQLite Databases - Content Providers-Loaders-Background Services-Widgets-Notifications	The students can 1. Able to work with ask loader and curser loader 2. Know how to access and save data and files 3. Understand SQLite	12
4	Android App in Android studio: Creating a new Android project-Defining the project and SDK setting-Creating an activity-Modifying the example application-Reviewing the layout and Resource Files-Previewing layout.	The students can 1. Able to develop Android application 2. Able to develop and design new Android project with all the function 3. Understand the SDK setting for the project	12
5	Android virtual device in Android studio: Android virtual device-creating new AVD-Starting the emulator-Running the application in AVD-Run/debug configuration-stopping a running application-AVD command line creation- Android device virtual configuration files-Moving and renaming virtual device.	The students can 1. Know about Android virtual device 2. Know how to start the emulator and run Applicationin AVD 3. Understand the Androiddevice virtual configuration	12

Text Books:

S. No	Title of the Book	Author's	Year(Edn)	Publisher/s
1	Learning Android Application Development	RaimonRafolsMontaneand LawrenceDaws	2016(1)	Packt Publishing, Birmingham Mumbai
2	Android Programming-The Big Nerd Ranch Guide	Bill Phillips,Cris steward and Kristin marskano	2018(1)	Big Nerd Ranch,LLC

Reference Books:

S. No	Title of the book	Author	Year(Edn)	Publisher/s
1	Android studio2 Development Essentials	Belen cruz Zapata	2016(2)	Packt Publishing Limited.
2	Android programming for beginners	John Horton	2018(2)	Ingram short title
3	Android studio2	Neil Smyth	2016(1)	Create space Independent Publisher

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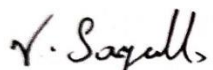
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Programme : BCA	Subject : Computer Applications
Course code : 19UCACL61	Course Title : Graphics And Multimedia Practicals
Category: Core Practical : 6	Credits : 3
Hours: 4	Hours: 4

1. Write a program to display an image as Tiled or Cascaded According to the users option.
2. Write a program so that it should first display the image as the size of applet then it should bereduced and again it should be reduced and so on and finally the image should disappear
3. Design a program to scale an image.
4. Write a program to rotate an image.
5. Develop a program to drop word by word or a sentence from top
6. Write a program to draw a line using Bresenham’s algorithm
7. Write a program to draw circle using Bresenham's algorithm.
8. Write a program to draw a line using DDA algorithm
9. Write a program to implement 2D transformation of circle.
10. Design a program to move a car with effect
11. Write a program to display the news Headlines letter by letter
12. Create a program to display as many balls in the frame in random position
13. Develop a program to bouncing a ball a ball and moving with sound effect
14. Design a program to create a scenery of rain in the frame with sound of rain
15. Write a program to create shape tweeting of an object and text.


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Programme : BCA	Subject : Computer Applications	
Course code : 19UCACP62	Course Title : Project	
Category : Project	Credits : 8	Hours: 8

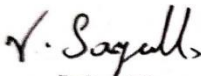
During this semester the students are expected to do literature survey, formulate the problem and form a methodology of arriving at the solution of the problem. Also during this semester, the students are expected to complete the project and submit a full-fledged report comprising of the complete system developed along with implementation and test results. The departmental committee shall examine the students for 100 marks and the evaluation is basedon continuous internal assessment comprising of three reviews.

Internal Assessment Component	Marks
I Review	10
II Review	10
Final Review	10
Report	20
Total	50

A Vivo-voce will be conducted by External Examiners and themarks shall be contributed as per the under mentioned components.

External Assessment Component	Marks
Presentation & Execution	25
Report	15
Viva-Voce	10
Total	50


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Project Guidelines

(For Certificate, Diploma, Advanced Diploma, UG, PG, and MPhil, programmes)

1. Duration of the project work shall be for a period of one semester
2. Project work shall be carried out under the supervision of a faculty member of the department concerned or from allied department, if the work is of interdisciplinary in nature or with internal or external expert beyond the department as co-supervisor.
3. The supervisor allocation shall be made by lot by the end of 4 semester in UG, by the end of 2ndsemester in PG (April 1st week) and for MPhil, 15 days after joining the programme. The allocation details may be sent to Autonomous cell by 10th April for UG & PG and for MPhil, 30 days after joining the programme.
 - a. After allocation, the respective supervisors have to conduct orientation/counsel meeting with the assigned candidates about the project with P3 agenda (Participation, Presentation, and Publication) towards career prosperity. Subject Knowledge towards Pure and Applied part may be highlighted for doing the project.
 - b. The H.O.D shall review the coverage of different fields of the subject amongst the candidates and to see that the students should not focus on particular fields alone.
4. The candidates have to study/refer journals/previous works/focus on the proposed topic in the summer vacation and 5-10 titles of proposed project on respective subject (discipline) or on allied subject (interdisciplinary) with economic/scientific/social/local/state/national/globalissues may be submitted to the guide by May end.
5. The supervisor shall guide the candidates on their choice after having reviewed proposed topics, the mindset and work culture, provided the work is of innovative in nature, affordable and with future prospective. If not satisfied with the proposed topic/due to lack of infrastructure/beyond scope and practicality, supervisor herself shall suggest the field/topic for work. Hard copy of proposed title with objectives in the prescribed format to be submitted to CoE’s Office through Dean, Autonomous in the last week of June
6. Parent’s undertaking/willingness may be obtained in writing by inviting the parents for department level meeting after explaining its importance, guidelines, safety precautions relatedto outdoor project commitments etc.
7. Project period – June to September. Last date for the submission of dissertation is 15th October
8. Project Progress Review has to be conducted in 5th July, 5th August and 5thSeptember.Report Card for individual candidates shall be maintained at the department for audit at any time. (Proforma)
9. If a candidate fails to submit the dissertationon or before the specified date, she may submit the same on or before 15th November by paying prescribed late fee.
10. The evaluation of dissertation will be as per the University/Autonomous norms

The assessment of Project component during the Course and in the End-semester examinations shall be carried out as follows:

CIA (Max: 25 Marks)				End – Semester Examination(Max.: 75 marks)				
Marks for Reviews (Average of the best two of the three compulsory Reviews)(Max.: 25 marks)				Marks for Thesis Evaluation (Max.: 25 marks)		Marks for Viva-Voce Exam. (wit the Deptl. Faculty Member / Course students) (Max.: 50 marks)		Total (Max.)
Review I (Max.)	Review II (Max.)	Review III (Max.)	Average of the best two (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	
25	25	25	25*	12.5	12.5	25	25	75*

* The marks secured may be rounded off to its nearest integer.

11. PG and M.Phil, students should carry out the project individually. UG students may undertake group projects with a maximum of three students in a group. The group may be of interdisciplinary nature combining students from two to three departments with the concern of the respective guides. An undertaking, in this regard, has to be submitted by the group of students with the endorsement by the guides.

12. LATEX procedure shall be followed for Mathematics projects.

13. **GUIDELINES ON THESIS (WITH STATIONERY ECONOMY MEASURES):**

a. Number of Pages (inclusive of prefix and suffix):

- i) V semester Project Maximum 40 pages;
- ii) VI semester Project Maximum 60 pages,
- iii) PG Projects Maximum 80 pages; Iv) M.Phil., maximum 100 pages.

b. Size of the paper A4; Font Times New Roman; Title 14 Capitals/Bold; Subtitle 12 Capitals/Bold; Running matter 11.

c. Left and Right margin 1 and half inch; Top and bottom margin 1 inch

d. Line space 1.5

e. Table and Figures shall be in separate sheets (without page number). More than 1 table or figure or plate is permitted in a page. Table number followed by the title should be on the top of the respective table. Similarly Figure Number followed by title be at the bottom of the respective figures. Regarding Plates ie photographs only original photographs (printed in photo sheet) of the work carried out and scientifically relevant to be included. The size the photographs should be reduced and neatly arranged in a page with appropriate title or sub title. Plate Number followed by the title is at the bottom of the photographs concerned.

f. Number of copies:

- i. Copy 1 – Student copy – Neatly typed on one side with good binding to be submitted (to be returned immediately after examination)
- ii. Copy 2 – Department copy - Neatly typed on both sides of the paper with stapler pin binding –Copies of all students have to be bound in volumes of 1 or 2 and kept in the department for reference.
- iii. Copy 3 - Autonomous Office copy – Projects of all students as one CD/DVD & Hard copy of the abstract/extended abstract as OHP bound booklet.
- iv. For PG & MPhil., (Candidate copy - Hard bound (one side print), Autonomy (CD), Guide copy (CD), Department (CD containing all projects of the class), Central library (CD containing all projects of the class) & Hard copy of the abstract/extended abstract as OHP bound booklet.

g. Uniform structure/composition of the thesis:

Uniformity in Prefix contents for all disciplines			
1	Wrapper page		
2	Wrapper page copy		
3	Contents		
4	Acknowledgement by the candidate		
5	Declaration by the Candidate with candidate's Photo attested by HoD		
6	Certificate by the supervisor, countersigned by HoD		
7	Evaluation Examiners Page		
Running matter structure Arts, Languages, Humanities		Running matter structure Science	
1	Abstract/Extended Abstract	1	Synopsis
2	Introduction	2	System Environment
3	Review of Literature	3	System Analysis
4	Profile of The Study	4	System Design
5	Methodology & Data collection	5	System Development
6	Analysis and Interpretation	6	Future Enhancement
7	Findings, Suggestions and Conclusion	7	Conclusion
8	Bibliography(Uniform format)	8	Bibliography (Uniform format)
Uniformity in Suffix – contents			
Publications – Xerox of Abstracts/extended abstracts/Full papers			

h. Bibliography: Arts & Science.

i. Research article:

Latha, P., Dhanabackialakshmi, R., Kumar, P.S. and Karuthapandian, S. 2016. Synergistic effects of trouble free and 100% recoverable CeO₂/Nylon nanocomposite thin film for the photocatalytic degradation of organic contaminants. Separation and Purification Technology, 168(2): 124–133

ii. Conference / Seminar / Symposium papers

Peng, J., Zhang, X., Lei, Z., Zhang, B., Zhang, W. and Li,Q. 2009. Comparison of several cloud computing platforms. In: Proceedings of Second International Symposium on Information Science and Engineering, 23 – 27

iii. Books

Versteeg, H.K. and Malalasekera, W. 2007.An Introduction to Computational FluidDynamics. II Edn. Pearson Education Ltd., New York, pp. 517

iv. Book Chapters

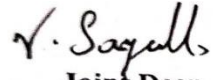
Wade, S.E. 1981. Statistical designs for survey research. In: Stempel, G.H. and Westley, B.H. (Eds.). Research methods in mass communication.Printice Hall IndiaLearning India Ltd., New Delhi, pp. 167

v. Web reference

National Institute of Mental Health.2018, July.Anxiety disorders. U.S. Department of Health and Human Services, National Institutes of Health. <https://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>

(Author to be included first, date to be included before month, if available)


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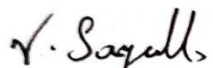

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Programme structure (wef 2020-2021)

Sem	Part	Category	Course code	Course title	Hours/week			Credits	Pg.No
					L	P	T		
I	III	Core – 1	20PCAC11	Discrete Mathematics	3	0	3	4	46
	III	Core – 2	20PCAC12	Data Structures using C	4	0	4	4	47
	III	Core – 3	20PCAC13	Computer Organization andArchitecture	4	0	4	4	48
	III	Core – 4	20PCAC14	Object Oriented Programming using C++	5	0	5	4	49
	III	Core-V	20PCAC15	Operating Systems	4	0	4	4	50
	III	Core Practical–1	20PCAL11	Data Structures using CPracticals	0	5	5	2	51
	III	Core Practical–2	20PCAL12	Object Oriented Programming using C++ Practicals	0	5	5	2	52
Total number of papers= L+P= 5+ 2					20	10	30	24	
II	III	Core –6	20PCAC21	PHP with My SQL	4	0	4	4	53
	III	Core –7	20PCAC22	Advanced Java Programming	4	0	4	4	54
	III	Core – 8	20PCAC23	RDBMS	4	0	4	4	55
	III	Core – 9	20PCAC24	Advanced Software Engineering	4	0	4	4	56
	III	Elective–1	20PCAE21/ 20PCAE22/ 20PCAE23/ 20PCAE24	Machine Learning in Data Science/Cloud Computing/Internetof Things/Mobile and Pervasive Computing	4	0	4	4	57
	III	Core Practical–3	20PCAL21	Advanced Java ProgrammingPractical	0	5	5	2	61
	III	Core Practical–4	20PCAL22	RDBMS Practicals	0	5	5	2	62
Total number of papers= L+P= 5+ 2					20	10	30	24	
III	III	Core – 10	20PCAC31	Financial Management andAccounting	4	0	4	4	63
	III	Core –11	20PCAC32	Computer Networks	4	0	4	4	64
	III	Core –12	20PCAC33	Programming in Python	4	0	4	4	65
	III	Core – 13	20PCAC34	.NET Programming	4	0	4	4	66
	III	Elective–2	20PCAE31/ 20PCAE32/ 20PCAE33/ 20PCAE34	Big Data Analytics/Artificial Intelligence/Neural Networks/Embedded Systems	4	0	4	4	67
	III	Core Practical–7	20PCAL32	.NET Programming Practicals	0	5	5	2	71
	III	Project	20PCAP31	Project 1	0	5	0	4	72
Total number of papers= L+P= 5+ 2					20	10	30	26	
IV	III	Project	20PCAP41	Project 2	0	30	30	16	74
Grand Total					60	30	90	90	


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Reaccredited with “A” grade by NAAC
A branch of Sri Ramakrishna Tapovanam, Tirupparaithurai Affiliated to Manonmaniam Sundaranar
University, TirunelveliPG Degree: Master of Computer Applications (MCA):

Programme Outcomes (POs):

PO1	Apply knowledge of Mathematical, Financial Accounting, Algorithmic and Computing Principles to solve real time problems.
PO2	Identify, formulate, analyze and interpret data by applying critical thinking to solve intricate problems in relevant domain disciplines.
PO3	Create, select and apply modern tools and techniques to analyze and develop a software system.
PO4	Use research based knowledge and apply research methodologies to explore the multifarious Problems and provide valid results.
PO5	Understand the need for self-learning for the continual development as a Computing Professional in the context of technological updation.

Programme Specific Outcomes (PSOs):

PSO1	Apply the theoretical foundations of computer science in various modeling, simulations and developing solutions to the multifarious real world problems
PSO2	Analyze software applications, process in a systematic way by implementing problem solving skills and tools and deploy it in product oriented Industry.
PSO3	Designing and developing the application software systems along with the database design and management that meet the automation needs of industry and society.
PSO4	Pursue higher studies; take up Research & Development and Entrepreneurships in the modern computing world.
PSO5	Propose innovative novel solutions to existing problems and bridge the research gaps found in the society



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PCA-BOS-Sri Sarada College for Women, Tirunelveli 627011SEMESTER I

Programme: MCA	Subject: Computer Applications	
Course code: 20PCAC11	Course Title: Discrete Mathematics	
Category: Core – I	Credits: 4	Hours: 3

Objectives:

1.
- To understand the basic principles of sets and operations in set theory.
2.
- To introduce the concept of integers and use the Cartesian product functions.
3.
- To learn the principle of inclusion and exclusion.
4.
- To work with recurrence relation and investigate the properties.
5.
- To learn the applications of graph theory.

Unit	Detailed Syllabus	Outcomes	Hour
1	Fundamentals of logic: basic connectives and truth tables-logical equivalence –logical implication, use of quantifiers. Set theory: sets and subsets - setoperations and the laws of set theory - counting.	The students can 1. Construct simple mathematical proofs and possess the ability to verify them. 2. have substantial experience comprehend formal logical arguments. 3. be familiar with propositional logic and predicate logic.	9
2	Properties of Integers: the well ordering principle-Recursive definitions – the division algorithm-Euclidean algorithm, fundamental theorem of arithmetic. Functions: Cartesian product – functions – onto functions – special functions.	The students can 1. specify and manipulate basic mathematical objects such as sets, functions, relations. 2. verify simple mathematical properties of sets and functions. 3. describe computer programs(e.g. recursive functions) in a formal mathematical manner.	9
3	Principle of Inclusion and Exclusion: Principle of inclusion and exclusion – Generalization of principle – Derangements - Rooks polynomials, Arrangements with forbidden positions.	The students can 1. gain experience in using various techniques of mathematical induction 2. learn about rook polynomials 3. demonstrate the principles of inclusion and exclusion.	9
4	Recurrence Relations: First–order linear recurrence relation, homogeneous and Non- Homogenous recurrence relation, Divide-and- conquer algorithms.	The students can 1. understand the first order Recurrence Relations. 2. learn divide and conquer algorithms. 3. learn homogeneous & non-homogeneous recurrence relation.	9
5	Graph Theory: Definitions and examples – Subgraphs – Complements and Graph isomorphism-vertex degree - Planar graphs: Hamiltonian paths and cycles –Graph coloring. Trees-types..	The students can 1. demonstrate on sub graphs and graph isomorphism 2. determine paths and cycles in graphs. 3. learn the graph coloring and trees.	9

Text Books:

S. No.	Title of the book	Author’s	Year(Edn)	Publisher/s
1	Discrete mathematics and its Applications	Kenneth H.Rosen	2018(8)	Tata McGraw-Hill, New Delhi
2	Discrete Mathematics and Its Applications	Kenneth Rosen	2017(7)	McGraw-Hill Education, New Delhi
3	Discrete Mathematics	Dr RK Bisht, Prof.Hoshiyar Singh Dhami	2015(5)	Oxford University Press,New Delhi

Reference Books and Web Links:

S. No.	Title of the book	Author	Year(Edn)	Publisher/s
1.	Advanced Discrete Mathematics	UdaysinghRajput	2012(1)	PHI Learning Private Limited, New Delhi
2.	Discrete Mathematics	Kevin Ferland	2009(2)	Houghton Mifflin Company, United States
3.	https://www.geeksforgeeks.org/engineering-mathematics-tutorials/			


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PCA-BOS-Sri Sarada College for Women, Tirunelveli 627011SEMESTER I

Objectives:

1. To understand the concept of C programming
2. To learn the use of functions, pointers, structures and union.
3. To understand the different types of data structures.
4. To learn the use of various search and sort algorithms.
5. To be able to solve the problems using non-linear data structure.

Programme: MCA		Subject: Computer Applications	
Course code: 20PCAC12		Course Title: Data Structures using C	
Category: C++		Credits: 4	Hours: 4
Unit	Detailed Syllabus	Outcomes	Hour
1	C Programming Basics: Structure of a C program – compilation and linking processes – Constants, Variables – Data Types – Expressions using operators in C – Managing Input and Output operations – Decision Making and Branching – Looping statements. Arrays – Initialization – Declaration – One dimensional and Two-dimensional arrays. Strings- String operations – String Arrays. Simple programs- sorting- searching – matrix operations	The students can 1. learn the syntax of C language and programming in C. 2. understand the control statements in C language. 3. Know arrays and strings in C language	12
2	Functions, Pointers, Structures And Unions: Functions – Pass by value – Pass by reference – Recursion – Pointers – Definition – Initialization – Pointers arithmetic. Structures and unions – definition – Structure within a structure – Union – Programs using structures and Unions – Storage classes, Pre-processor directives.	students can 1. learn pointers, structures and unions. 2. understand pointer arithmetic. 3. know storage classes and pre-processor structures.	12
3	Linear Data Structures: Arrays and its representations – Stacks and Queues – Linked lists – Linked list-based implementation of Stacks and Queues – Evaluation of Expressions – Linked listbased polynomial addition.	students can 1. learn to implement stacks and queues in C++. 2. know analyze various sorting algorithms. 3. understand and analyze various search algorithms.	12
4	Non-Linear Data Structures: Trees – Binary Trees – Binary tree representation and traversals – Binary Search Trees – Applications of trees. Set representations – Union-Find operations. Graph and its representations – Graph Traversals.	students can 1. examine the computational efficiency of the Tree and graph data Structures. 2. have knowledge of tree and graphs concepts. 3. demonstrate different methods of traversing trees and graphs.	12
5	Searching And Sorting Algorithms: Linear Search – Binary Search. Bubble Sort, Insertion sort – Merge sort – Quick sort – Hash tables – Overflow handling.	students can 1. examine several algorithms to solve a problem. 2. understand different algorithm design methods. 3. design experiments to evaluate algorithmic solutions.	12

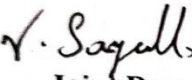
Text Books:

S. No	Title of the book	Author’s	Year(Edn)	Publisher/s
1.	Programming in C	PradipDey and ManasGhosh	2012(2)	Oxford University Press, Chennai
2.	Fundamentals of Data Structures in C	Ellis Horowitz, Sartaj Sahni, Susan Anderson-Freed	2012(2)	University Press, Hyderabad
3.	Data Structures and Program Design in C	Robert Kruse, Colton, Bruce Leung, Shashi Molalla	2007(2)	Pearson Education, Chennai.

Reference Books & Web Links:

S. No	Title of the book	Author’s	Year(Edn)	Publisher/s
1.	An Introduction to Data Structures with Applications	Jean-Paul Tremblay and Paul G. Sorenson	2007(2)	Tata McGraw-Hill, New Delhi
2.	Data Structures and Algorithm Analysis in C	Mark Allen Weiss	1998(2)	Pearson Education, Chennai
3.	https://www.w3schools.com/			


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Objectives:

1.
2.
3.
4.
5.
- To understand basic structure of computer.
- To understand control unit operations.
- To learn the memory organization and its characteristics.
- To learn the Input output organizations and characteristics of peripherals.
- To understand the concept of parallel organization.

Programme : MCA	Subject : Computer Applications
Course Code : 20PCAC13	Course Title: Computer Organization And Architecture
Category : To understand basic structure of computer.	Hours: 4

Unit	Detailed Syllabus	Outcomes	Hour
1	Computer Evolution & Arithmetic: A Brief History of computers - Designing for Performance - Von Neumann Architecture - Hardware architecture - Computer Components - Interconnection Structures - Bus Interconnection - Scalar Data Types - Fixed and Floating point numbers - Signed numbers - Integer Arithmetic - 2's Complement method for multiplication- Booths Algorithm - Hardware Implementation - Division - Restoring	Students can 1. understand of a modern computer systemducts. 2. have skills to solve real life problems using a low level programming language. 3. evaluate the theory and architecture	12
2	The Central Processing Unit: Machine Instruction characteristics - types of operands - types of operations Addressing modes - Instruction formats - Instruction types - Processor organization - Intel 8086 as example Programmers model of 8086 - max/min mode - Register Organization - Instruction cycles - Read Develop cycles - 8086 assembly instruction examples to explain addressing modes. The Control Unit: Single Bus Organization - Control UNIT Operations: Instruction sequencing - Micro operations and Register Transfer. Hardwired Control: Design methods – State table and classical method - Design Examples - Multiplier CU.	Students can 1. identify some of the design issues in terms of speed, technology, cost and performance. 2. be familiar with different types of addressing modes. 3. understand concepts of hardwired control and micro programmed control.	12
3	Memory Organization: Characteristics of memorysystems Internal and External Memory - Types of memories: ROM: PROM, EPROM, EEPROM, RAM: SRAM, DRAM, SDRAM, RDRAM. High-Speed Memories: Cache Memory - Organization and Mapping Techniques - Replacement Algorithms - Cache Coherence - MESI protocol. Virtual Memory: Main Memory allocation – Segmentation – Paging - Address Translation Virtual to Physical. Secondary Storage: Magnetic Disk – Tape, DAT, RAID, Optical memory - CDROM, DVD.	Students can 1. demonstrate the concept of memory management hardware. 2. summarize the types of memory 3. distinguish the connection between the processor and memory.	12
4	I/O Organization: Input/output Systems - Programmed I/O - Interrupt Driven I/O - 8086 Interrupt structure - Direct Memory Access (DMA) - 8237 features. Buses and standard Interfaces: Synchronous, Asynchronous, Parallel I/O 8255 features, Serial I/O 8251 features, PCI, SCSI and USB Ports. Working mechanisms of Peripherals: Keyboard, Mouse, Scanners, Video Displays, Touch Screen panel, Dot Matrix, Desk-jet and Laser Printers.(features and principles)	Students can 1. bbuild large memories using small memories for better performance. 2. identify, compare and assess issues related to control and i/o functions. 3. demonstrate computer architecture concepts related to design.	12
5	Parallel Organization: Instruction level pipelining and Superscalar Processors - Multiple Processor Organizations - Closely and Loosely coupled multiprocessors systems Symmetric Multiprocessors, Clusters, UMA NUMA - Vector Computations. RISC: Instruction execution characteristics RISC architecture and pipelining	Students can 1. differentiate between Multipleprocessor and Superscalar processor 2. identify the advancements of architecture. 3. get clear knowledge of RISK and CISC machines	12

Text Books:

S. No.	Title of the book	Author	Year(Edn)	Publisher/s
1.	Computer Organization and Architecture	William Stallings	2018(11)	Pearson Education, Chennai
3.	Data and Computer Communications	William Stallings	2011(9)	Prentice Hall, New Delhi

Reference Books & Web Links:

S. No.	Title of the book	Author's	Year(Edn)	Publisher/s
1.	Computer Systems Architecture	Morris Mano	2017(3)	Pearson Education, Chennai
2.	The Essentials of Computer Organization and Architecture	Linda Null, Julia Lobur	2015(4)	Jones and Bartlett Learning, New Delhi
3.	https://www.geeksforgeeks.org/computer-organization-and-architecture-tutorials/			


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PCA-BOS-Sri Sarada College for Women, Tirunelveli 627011SEMESTER I

Objectives:

Programme : MCA	Subject : Computer Applications	
Course Code : 20PCAC14	Course Title: Object Oriented Programming using C++	
Category : Core – 4	Credits : 4	Hours:4

1.

2.

3.

4.

5.

To learn key principles in Object Oriented analysis, design, and development.

To understand the concept of token expressions and control structures.

To master the fundamental principles and functions of Object Oriented Programming.

To gain knowledge about constructors and destructors.

To learn virtual functions, polymorphisms and file handling.

Unit	Detailed Syllabus	Outcomes	Hour
1	Principles of Objective Oriented Programming: Object Oriented Programming Paradigm - Basic Concepts of Object Oriented Programming - Benefits of Object Oriented Programming - Object Oriented Languages - Applications of Object Oriented Programming - Beginning with C++	The students can 6. know the paradigms of programming languages. 7. concepts of Object Oriented Programming. 8. applications of Object Oriented Programming.	12
2	Token Expressions & Control Structures: Tokens – Keywords - Identifiers and Constants - Data Types - Type Compatibility – Variables - Operators in C++ - Implicit Conversions - Operator Overloading - Operator Precedence - Control Structures.	The students can 1. learn the syntax of C++ language and programming in C++. 2. learn operators and operator precedence in C++ 3. understand all the control structures in C language.	12
3	Functions in C++, Classes & Objects: The Main Function - Function Prototyping - Call by Reference - Return by Reference - Inline Functions - Function Overloading - Friend and Virtual Functions. Specifying a class - Member Functions - Arrays within a class - Static Member Functions - Arrays of Objects - Friendly Functions.	The students can 1. learn functions and types of functions. 2. understand function overloading and virtual functions. 3. know about arrays and its applications.	12
4	Constructors & Destructors, Operator Overloading, Inheritance: Constructors - Parameterized Constructors - Copy Constructors - Dynamic Constructors – Destructors - Defining Operator Overloading - Overloading Operators - Rules for Overloading Operators - Type Conversions – Inheritance.	The students can 1. learn constructors and destructors. 2. understand different types of constructors. 3. know the concept of operator overloading.	12
5	Reference Books and Web Links: Exception handling Pointers - Pointers to Objects - this pointer - Pointer to Derived Classes - Virtual Functions - Classes for File Stream Operations - Opening and Closing a File - File Modes - File Pointers - Input Output Operations - Updating a File.	The students can 1. learn the pointers and working with pointers. 2. understand virtual functions. 3. learn file handling.	12

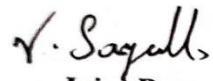
Text Books:

S.No.	Title of the book	Author	Year(Edn)	Publisher's
1.	Object-Oriented Programming in Turbo C++	Robert Lafore	2017(4)	Pearson India, Bangalore
2.	Object-oriented programming with C++ by TMH.	E .Balagurusamy	2017(7)	McGraw Hill Education, New Delhi
3.	Complete Reference C++	Herbert Schildt	2017(4)	Tata McGraw Hill, New Delhi

Reference Books & Web Links:

S.No.	Title of the book	Author's	Year(Edn)	Publisher's
1.	Object-Oriented Programming with C++	Sutharsan	2017(7)	McGraw Hill Education, New Delhi.
2.	C++ Programming in easy steps	Mike McGrath, Pearson	2011(1)	Pearson, Bangalore
3.	http://www.cplusplus.com (C++ documents, tutorials, and references).			


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**PCA-BOS-Sri Sarada College for Women, Tirunelveli 627011Re accredited with “A” grade by NAAC
SEMESTER I**

Programme : MCA	Subject : Computer Applications	
Course code: 20PCAC15	Course Title: Operating Systems	
Category : Core – 5	Credits : 4	Hours:4

/Objectives:

- To master structures and functions of operating systems.
- To learn types of operating system.
- To master various process management concepts including scheduling, synchronization, and deadlocks.
- To learn about the concept of memory management.
- To get insight of Input output devices and secondary management.

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction: Definition-History-Sample operating Systems-protection mechanisms-operating system services, calls, structure of operating systems-virtual machines-system design, implementation. Overview of system programs-Assembler-linker and loader. Process management: Process Management: Process concepts, operations on process-process states transitions-co-operative process-inter process communication-threads and multithreading models.	students can 1. analyse the structure of Operating System and basic architectural components involved in OSdesign. 2. understand the process management and its transition of operating system. 3. analyse the difference between process and threads.	12
2	CPU Scheduling: Process Scheduling-basic concepts-scheduling algorithms-multiprocessor scheduling-real time scheduling-evaluation of scheduling algorithms. Process Synchronization-semaphores-Classical synchronization problems-IPC mechanisms. Deadlock: What is?-System model-deadlock characterization-prevent a deadlock-deadlock avoidance, detection-recovery from a deadlock.	The students can 1. describe the various CPU scheduling algorithms and remove deadlocks. 2. understand the Mutual exclusion, Deadlock detection andagreement protocols of operating system. 3. apply synchronization primitives and evaluate deadlock conditions.	12
3	Memory Management: Requirements-memory partitioning-paging segmentation-virtual memory system-virtual memory basics- hardware and control structures-operating system software	students can 1. identify various memory management techniques and its requirements. 2. design and implement of virtual memory using paging. 3. understand the operating system software like kernel, and shell.	12
4	I/O systems: I/O devices-concepts-organization of the I/O function-I/O design issues, buffering- input and output mechanisms-File Systems: concepts-descriptors-Access methods-directory structures-file systems-UNIX file systems-file handling in windows systems-file system mounting-file sharing-protection-file system structures-recovery-disc formatting. Secondary storage managements: allocation methods- directory implementation-free space managements-disc structure-access-space managements-device driver-disc controller-scheduling.	students can 1. gain full-fledged skill about file system 2. interpret the mechanisms that adopted for file sharing in distributed applications. 3. construct the structure of secondary storage and disk structure	12
5	Linux: Main difference between Unix and Linux-process management, scheduling- memory, file management-device drivers- security-C-process management- win 32 Synchronization-memory management interface-windows registry Distributed Operating System: Process migration-remote procedure call-distributed process, file management-issues in distributed database systems-distributed mutual exclusion-deadlock in distributed systems.	students can 1. understand the Linux operating system and device drivers. 2. conceptualize the components involved in designing a contemporary OS 3. apply appropriate memory and file management schemes in casestudies.	12

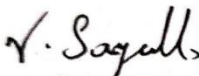
Text Books:

S. No	Title of the book	Author's	Year(Edn)	Publisher/s
1	Operating System	Achyut S GodboleAtulKahate	2017(3)	Tata McGraw Hill,New Delhi
2	Operating System principles	Abraham silverschatz, Peter Galvin, GreekGagne	2018(10)	John Wiley Eastern Publication,New Delhi
3	Operating System	William Stallings	2017(9)	Prentice Hall of India, New Delhi

Reference Books& Web Links:

S. No.	Title of the book	Author	Year(Edn)	Publisher's
1	Operating Systems – Internals and Design Principles	William Stallings	2018(9)	Prentice Hall, New Delhi
2	Operating Systems: A Concept-Based Approach	DhananjayDhamdhare	2017(3)	Tata McGraw-Hill,New Delhi
3	https://www.tutorialspoint.com/operating_system/index.html			


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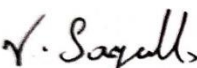

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PCA-BOS-Sri Sarada College for Women, Tirunelveli 627011SEMESTER I

Programme: MCA	Subject: Computer Applications	
Course code: 20PCAL11	Course Title: Data Structures using C Practicals	
Category: Core Practical – 1	Credits: 2	Hours: 5

1.
- To implement a Bubble sort
2.
- To create a program to implement Polynomial Addition using array
3.
- To implement a Sparse matrix transpose
4.
- To implement a Stack implementation using array
5.
- To create a program to implement Queue implementation using array
6.
- To implement a Stack implementation using linked list
7.
- To create a program to implement Queue implementation using linked list
8.
- To implement an Infix to postfix conversion
9.
- To create a program to implement Postfix evaluation
10.
- To create a program to implement Quick Sort
11.
- To implement Binary Search using linked list
12.
- To implement linear search using linked list
13.
- To implement Polynomial Addition using linked list
14.
- To create a program to implement Binary Tree Traversal
15.
- To create a program to implement Binary Search Tree conversion
16.
- To create a program for Shortest Path
17.
- To create a program to implement heap sort.
18.
- To create a program to implement merge sort.
19.
- To write a C program to implement insertion sort.
20.
- To write a C program to implement Linear Search.
21.
- To create a program to implement selection sort.
22.
- To write a C program to implement circular queue using array.
23.
- To write a C program to implement doubly linked list.
24.
- To write a C program for implementation of hash functions.
25.
- To write a C program to implement BFS and DFS Traversal.


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Programme: MCA	Subject: Computer Applications	
Course code: 20PCAL12	Course Title: Object Oriented Programming using C++ Practicals	
Category: Core Practical –2	Credits: 2	Hours:5

1.
- To write a program wherein define a class, create instances of it and generate menu driven options to testthe services of the class.
2.
- To write a program which reads records of N number of objects created in program 1 in an array ofobjects and prints the list of
required attributes in the tabular format.
3.
- To write a program to validate the design principle “Prefer pass-by-reference-to-const to pass-by-value”.
4.
- To write a program to implement the concept of compiles time polymorphism - unary & binary operatoroverloading.
5.
- To write a program to implement the inheritance and the run-time polymorphism
6.
- To write a program to Differentiate between inheritance of interface and inheritance of implementation.
7.
- To write program to implement the concept of Virtual functions
8.
- To write a C++ program to implement the concept of virtual base class.
9.
- To write a Program for Exception Handling Divide by zero Using C++ Programming.
10.
- To write a C++ program for swapping two values using function templates
11.
- To write the C++ program to implement the program development using STL
12.
- To implement a Program using Dynamic memory allocation
13.
- To design and implement Program using Exceptions
14.
- To execute Programs using Sequential and Random access files
15.
- To write a C++ program to implement matrix ADT of a class.
16.
- To write a program to invoking derived class member through base class pointer.
17.
- To write a template based program to sort the given list of numbers.
18.
- To write a program to generate Fibonacci series use Constructor to initialize data members.
19.
- To write a program to illustrate single level inheritance.
20.
- To write a program to illustrate Multilevel inheritance.
21.
- To write a program to illustrate hierarchical inheritance. To
22.
- To write a C++ program that illustrates order of execution of constructors and destructors when one newclass is derived from
more than one base class.
23.
- To write a C++ program to find both largest and smallest number in the list of integers.
24.
- To write a program to illustrate multiple inheritance.
25.
- To write a C++ program to demonstrate friend functions and friend class.


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Programme : MCA	Subject : Computer Applications	
Course code: 20PCAC21	Course Title: PHP with My SQL	
Category : Core –6	Credits : 4	Hours: 4

Objectives:

1.
- To understand the importance of open source software importance over proprietary software
2.
- To apply the various open source programming concepts in software development
3.
- To outline the technical difference between open source programming languages
4.
- To learn out the open source software tools and processors.
5.
- To be able to work with web server.

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction: The need of open Sources-advantages of Open sources application - Open Source Development Model Licenses and Patents - FOSS,BSD, Free Software Movement - commercial software vs. Open Source software - Commercial aspects of Open Source movement - Certification courses issues -global and Indian. Copyrights and copy lefts - Application of Open Sources - Problems with traditional commercial software.	students are able to 1. open source technology for development of web applications. 2. be familiar with the problems in traditional commercial software. 3. operate source scripting language PHP.	12
2	Open source scripting Language. Introduction: What is PHP? - Basic Syntax of PHP – programming in web environment - Common PHP Script Elements -Using Variables - Constants – Data types - Operators; Statements – Working With Arrays -Using Functions – OOP - String Manipulation and Regular Expression, File and Directory Handling, Working With Forms.	students are able to 1. demonstrate open sourcemanagement system and connectionwith database. 2. be familiar in source web server and software tools. 3. know the necessity to open source technology, open source development model and application of open sources	12
3	Open source database management System: MySQL: Introduction – Setting up an account -Starting, Terminating and writing your own MySQL Programs -Record Selection and Technology - Working with Strings - Date and Time – Sorting Query Results module -Generating Summary - Working with Metadata – Using Sequences – MySQL and Web PHP and SQL database: PHP and LDAP ; PHP Connectivity ; Sending and receiving emails, PHP Database Connectivity: Retrieving data from MySQL	students are able to 1. understand the concept of MYSQL 2. be familiar with basis syntax of PHP, and common PHP scriptselements. 3. create the server side scripting using PHP, implement PHP database connectivity, perform operation on database and open source database management system.	12
4	Open Source Software tools and Processors: Introduction – Eclipse IDE Platform – Compilers – Model driven architecture tools – Selenium ID – Features and uses Government Policy toward Open Source (E- Governance) – Wikipedia as an open Source Project.	students are able to 1. workwith different web Servers. 2. know about the software tool and process like Eclipse IDE, Selenium ID. 3. differentiate between MYSQL and HTML	12
5	Web Server: Apache Web server – Working with web server – Configuring and using apache web server, WAMP server, Lighttpd, Fnord, Nginx, Savant, tornado.	students are able to 1. understand various web database architectures 2. know the benefits and features of open source technology 3. understand the creation of database and web application	12

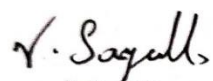
Text Books:

S. No.	Title of the book	Author’s	Year(Edn)	Publisher/s
1	PHP and MySQL	Mike McGrath	2017(1)	McGraw Hill Education,New Delhi
2	Mastering Linux Kernel Book	Rem Card,Eric Dumas and Frank Mevel	2017(1)	Mumbai

Reference Books & Web Links:

S. No.	Title of the book	Author	Year(Edn)	Publisher/s
1	PHP and MySQL	Mike McGrath	2017(1)	McGraw Hill Education, New Delhi
2	PHP and MySQL for Dynamic Web Sites: Visual QuickProGuide	Larry Ullman	2017(5)	Peachpit Press, SanFrancisco
3	https://www.w3schools.com/			


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Programme : MCA	Subject : Computer Applications	
Course code:20PCAC22	Course Title: Advanced Java Programming	
Category : Core – 7	Credits : 4	Hours: 4

Objectives:

1.

2.

3.

4.

5.
- To understand Object Oriented Programming concepts in JAVA and Applet programming.

To develop learners’ knowledge to create client / server application, developing Java Beans.

To learn the concept of database connectivity in java.

To be able to create RMI client server application.

To be able develop Jsp application.

Unit	Detailed Syllabus	Outcomes	Hour
1	Swing: Introduction JApplet Class – Image Icon Class – JLabel Class - JButton Class – JTextField Class – JCheckBox Class - JRadioButton Class –JComboBox Class – JTabbedPane Class – JScrollPane Class – JSplitPane Class – Dialogs – File Selection Dialog – JColor Chooser Class – JTable Class – JToolBar Class – JProgressBar Class – JSlider Class – JTree Class – Examples of Menus, and Swing components. Multimedia: Applets and Applications: Introduction – Loading, Displaying and Scaling Images, Animating a Series of Images, Image Maps, Loading and Playing Audio Clips, Playing Video and other Media with Java Media Framework.	students can 1. know the programming using Applets 2. create a full set of UI widgets and other components, including windows, menus and buttons 3. apply event handling on AWT and Swing components.	12
2	Networking: Introduction – Networking Basis – Java and the Net – Internet Address – TCP/IP Client Sockets – URL – URL Connection – TCP/IP Server Sockets – Proxy HTTP Server – Datagram’s – Inet4Address and InetNe6Address – URL Class – UDP Approach – Accessing Resources on the Internet. Java .net Package – Internet Addressing with Java – Socket with Fundamentals – Sockets in Java – URL 680.	students can 1. gain full-fledged knowledge on networking through Java programs, using sockets. 2. create dynamic web pages, using net packages and datagrams. 3. develop the programs using sockets.	12
3	Java Database Connectivity: Introduction – Establishing a connection – Creation of data tables – Entering data into the tables – Table updating – Use of Prepared statement – Obtaining Meta data – Using Transactions – Scrollable Result sets – Stored Procedures. Servlets: Introduction – Servlets and Dynamic Web Pages – Life Cycle of a Servlet – Constituents of javax.servlet Package – Retrieving the values of parameters – Retrieving the values of Initialization parameters – The javax.servlet.http package – cookies	students can 1. invoke and develop the methods in an application using JDBC 2. understand the Server side scripting applications using Servlets. 3. develop programs using packages and cookies.	12
4	Remote Method Invocation: Introduction – Remote Interface – java.rmi.server package – The Naming class – RMI Security Manager Class – RMI exceptions – Steps involved in creating RMI client and server classes. A Simple Client/Server Application Using RMI.	students can 1. obtain knowledge in RMI interfaces. 2. recognize Java classes and object in RMI Exceptions. 3. design Client/Server applications in the Java programming language.	12
5	JSP Application Development: Generating Dynamic Content, Using Scripting Elements ImplicitJSP Objects, Conditional Processing – Displaying Values Using an Expression to Set an Attribute, Declaring Variables and Methods Error Handling and Debugging Sharing Data Between JSP pages, Requests, and Users Passing Control and Date between Pages – Sharing Session and Application Data – Memory Usage Considerations Database Access Database Programming using JDBC Studying Javax.sql.* package.	students can 1. understand basics of the JSP programming. 2. apply logical constructs for branching and loops 3. define classes, methods using SQL in JSP.	12

Text Books:

S.No.	Title of the Book	Author	Year(Edn)	Publisher/s
1	Java 2 - The Complete Reference	Herbert Schildt	2017(5)	Tata McGraw Hill, New Delhi
2	Java: A Beginner's Guide	Herbert Schildt	2017(7)	McGraw-Hill, New Delhi

Reference Books & Web Links:

S.No.	Title of the Book	Author	Year(Edn)	Publisher/s
1	Java The CompleteReference	Herbert Schildt	2017(8)	McGraw Hill Education, NewDelhi
2	Core Java, Volume II-Advanced Features	Cay S. Horstmann GaryCornell	2013(9)	PHI, New Delhi
3	https://www.w3schools.com/			


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Programme : MCA	Subject : Computer Applications	
Course code: 20PCAC23	Course Title: RDBMS	
Category : Core –8	Credits : 4	Hours: 4

Objectives:

1.
- To understand the basic concepts of database, relational algebra.
2.
- To get familiar with commercial relation database systems (oracle) and construct queries.
3.
- To understand the basic principles of Relational database design
4.
- To gain knowledge about distributed databases.
5.
- To get insight about concept of transactions.

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction: Database Applications-Database systems versus file-view of data-Data models- database languages- Database users and administrators-transaction management-Database systems structure-Application architecture-History of Database systems.Data models: Basic concepts- Constraints-Keys-Design issues-Entity Relationship Diagram-Weak Entity sets-Extended E-R Features- Design of an E-R Database Schema-Reduction of an E-R Schema to Tables-The Unified Modeling language UML Relational Model.	students can 1. demonstrate the elementary & advanced features of DBMS &RDBMS 2. design ER-models to represent simple databaseapplication scenarios 3. convert the ER-model to relational tables, populate database and formulate SQL queries on data	12
2	Relational Databases: SQL-Background-Basic structure-Set operations-Aggregate functions-Null values-nested subqueries-Views-complex queries-modification of the database-joined relations-data definition languages-embedded SQL-dynamic SQL-other SQL features. Integrity and security: Domain constraints-referential integrity-assertions-triggers-security and authorization-authorization in SQL-encryption and authentication.	students can 1. attain a good practical understanding of the SQL 2. examine techniques pertaining to Database design practices 3. design and document data	12
3	Relational database design: First normal form- pitfalls in relational database design-functional dependencies-decomposition-desirable properties of decomposition-boyce-codd normal form-third normal form-fourth normal form-more normal forms-overall database design process. object oriented databases: Need for complex data types-the object oriented data model-nested relations-complex types-inheritance- reference types-XML-structure of XML data –XML document schema-querying and transformation.	students can 1. develop a clear understanding of the conceptual frameworks and definitions of RDMS 2. develop clear concepts about Relational Model. 3. demonstrate XML document.	12
4	Storage and file structure: Overview of physical storage media-magnetic data-RAID-tertiary storage-storage access-file organization-data dictionary storage. Indexing and hashing-basic concepts-ordered indices-B+ tree index files-B tree index files-static hashing-dynamic hashing-query processing-overview- measures of query cost-selection operation-sorting- join operation. Distributed databases: Homogenous and heterogeneous databases-distributed data storage- distributed transactions-commit protocols-concurrency control in distributed databases-availability-distributed query processing-heterogeneous distributed databases-directory systems.	students can 1. build, populate, and document a secure,normalized database business requirements using industry standards 2. prepare various database tables and joins them using SQL commands 3. understand the basic concepts of Concurrency Control & database security.	12
5	Transactions: Transaction concept-transaction state-implementation of atomicity and durability- concurrent executions-serializability-recoverability- implementation of isolation-transaction definition in SQL-testing for serializability. Concurrency control: lock based controls-timestamp-based controls- validation-based controls-multiple granularity- multiversion schemes-deadlock handling-insert and delete operations –weak levels of consistency- concurrency in index structures. Recovery system: Failure classification-storage structure	students can 1. learn toimplement serializability in databases. 2. know about transaction concepts. 3. Understandrecovery and backup systems.	12

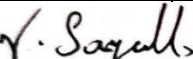
Text Books:

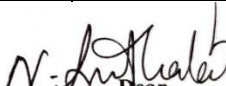
S. No.	Title of the book	Author	Year(Edn)	Publisher/s
1.	Database system concepts	Abraham Silberschatz, HenryF.Korth	2019	Tata McGraw Hill Education, New Delhi
2.	DBMS Concepts - A Practical approach	TanmayKasbe	2016(1)	Educreation Publishing, Chhattisgarh

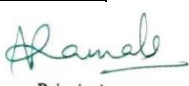
Reference Books & Web Links:

S. No.	Title of the book	Author's	Year(Edn)	Publisher/s
1.	Database Management Systems	R. Panneerselvam	2018(3)	PHI Learning, New Delhi


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Objectives:

1. To apply knowledge of mathematics, science, and engineering in developing systems.
2. To know about case studies.
3. To design and conduct experiments, as well as to analyse and interpret data.
4. To learn about the modules and objectives of object.
5. To learn about requirements and its case tools.

Programme : MCA	Subject : Computer Applications
Course code:20PCAC24	Course Title: Advanced Software Engineering
Category To apply knowledge of mathematics, science, and engineering in developing systems.	Credits: 4Hours: 4

Unit	Detailed Syllabus	Outcomes	Hour
1	The scope of software engineering: Software Life-cycle models-The Software process-Objectives, The Unified process, Iteration and Incrementation within the object-oriented paradigm. The requirements workflow, The analysis workflow, The design workflow, The implementation workflow, The test workflow, Post-delivery maintenance, Retirement, The phases of the Unified process, Capability Maturity models, other software process improvement initiatives, Cost benefits of software.	students can 1. plan a software engineering process life cycle. 2. elicit, analyse and specify software requirements . 3. analyse and translate a specification into a design,and then realize that designpractically, using an appropriate software engineering methodology.	12
2	The tools of the trade: Objectives, Stepwise refinement, Cost benefit analysis, Software metrics, CASE, Taxonomy of CASE, software versions, Configuration control, Build tools, Productivity gains with CASE technology. Testing-objectives, Quality issues, Non-execution based testing, Execution based testing.	The students can 1. know how to develop thecode from the design 2. effectively apply standardsand perform testing 3. analyse quality management and practice.	12
3	From modules to objects: Objectives, What is a module?, Cohesion, Coupling, Data Encapsulation, Abstract data types, Information Hiding, Objects, Inheritance, Polymorphism and Dynamic Binding, The object oriented paradigm. Reusability and portability-Objectives. Reuse concepts, Impediments to reuse, Reuse case studies, Object and Reuse, Reuse during design and implementation.	students can 1. use modern engineering tools necessary for software project get ability. 2. to communicate effectively with a range of audiences 3. have ability to recognize ethical and professional responsibilities in softwareengineering.	12
4	Requirements: Objective. Understanding the Domain, the business model, Initial requirements, Initial understanding of the domain, Initial business model, Initial requirements, continuing the requirements workflow, Revising the requirements, The test workflow, The classical requirements phase, Rapid prototyping, Human factors, Reusing and rapid prototype. CASE tools for the requirements workflow, Entity relationship modeling, Finite state machine, other formal.	students can 1. gain ability to function effectively on a team 2. develop and conduct appropriate experimentation,analyse and interpret data 3. secure ability to apply new knowledge as needed, usingappropriate learning.	12
5	Design: Objectives, Design and Abstraction, Operations oriented design, Data flow analysis, Transaction Analysis, Data oriented design, Object oriented design, The design workflow, The test workflow, Formal techniques for detailed design, Real time design techniques, CASE tools for design, choice of Programming languages. Fourth generation languages, Good Programming practice, The implementation workflow, The test workflow, The black box unit testing techniques, Glass-box unit testing techniques, Potential problems when testing objects Management objects of unit testing.	students can 1. learn to design a system with its proper components 2. choose a programming language to develop the system. 3. learn to implement various testing's a system has to undergo before implementation.	12

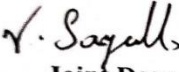
Text Books:

S. No	Title of the Book	Author	Year(Edn)	Publisher's
1.	Software Engineering,APractioners Approach	Bruce R. Maxim Roger S. Pressman	2019(8)	Tata mc Graw Hill, NewDelhi
2.	Fundamentals of Software Architecture: An Engineering Approach	Mark Richards andNeal Ford	2020(3)	O'Reilly, California

Reference Books & Web References:

S. No.	Title of the Book	Author's	Year(Edn)	Publisher's
1.	Software Engineering	Jibitesh Mishra, AshokMohanty	2012(1)	Pearson Education,Bangalore
2.	Software Engineering Fundamentals	Ali Behforroz, FrederickJ.Hudson,	2012(1)	Oxford Indian Reprint,New Delhi
3.	https://www.w3schools.com/			


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Objectives:

1.
2.
3.
4.
5.
- To understand the concepts of machine learning.
- To understand the clustering techniques and their utilization in machine learning.
- To study the neural network systems for machine learning.
- To gain knowledge about linear and logistic regression.
- To understand the concept of reinforcement learning.

Programme : MCA	Subject: Computer Applications	
Course code: 20PCAE21	Course Title: Machine Learning in Data Science	
Category: Elective 1	Credits: 4	Hours: 4

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction: Machine learning-What and why? - Types of Machine Learning - Supervised Learning - Unsupervised Learning – reinforcement - The Curse of dimensionality - Over fitting and linear regression - Bias and Variance - Learning Curve Classification - Error and noise - Parametric vs. non-parametric models - Linear model.	students can 1. be familiar in the fundamentals of Machine Learning. 2. understand the concepts of Supervised and Unsupervised Learning. 3. know Regression and Curve fitting.	12
2	Clustering Approaches: Measuring (dis)similarity - Evaluating the output of clustering method - Spectral clustering - Graph Laplacian - Normalized graph Laplacian - Hierarchical clustering - Agglomerative clustering - Divisive clustering - Choosing the number of clusters - Bayesian hierarchical clustering - Clustering data points and features - Bi-clustering - Multi-view clustering - K-Means clustering - K-medoids clustering.	students can 1. know about various clustering methods. 2. understand similarity measures used for clustering. 3. analyse clustering methods.	12
3	Neural Networks: Biological motivation for Neural Network - Neural network Representation - Perceptrons - Feed forward networks - Multilayer Networks and Back Propagation Algorithms - Convergence and local minima and Hidden layer representation in back propagation - Recurrent networks - Applications of neural networks - Face recognition using neural networks.	students 1. know about Neural Networks. 2. understand the motivation and applications of Neural Networks. 3. implement Face recognition using Neural Networks.	12
4	Linear Models: Linear Regression - Logistic Regression - Maximum Likelihood estimation (least squares) - Robust linear regression - Ridge Regression - Principal Component Analysis - Bayesian Classifier - Support Vector Machines.	students can 1. find out various types of Regression. 2. understand and analyse Bayesian classifier and Support Vector Machines. 3. analyse Bayesian classifier and Support Vector Machines.	12
5	Tree Learning and Reinforcement Learning: Directed and Undirected trees - Decision tree representation - Basic decision tree learning algorithm - Passive reinforcement learning – temporal-difference learning – active reinforcement learning – applications in game playing – applications in robot control.	The students can 1. get insight on Decision Tree representation and Reinforcement Learning. 2. understand the concept Reinforcement Learning in Game Playing 3. implement the Decision Trees and Reinforcement Learning in Robot control.	12

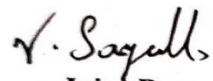
Text Books:

S. No.	Title of the Book	Author’s	Year(Edn)	Publisher’s
1.	A practical approach for Machine learning and Deep learning algorithms	Abhishekkumarpandey, Pramodsinghrathore,Dr. S.Balamurugan	2019(1)	BPB publications, NewDelhi.
2.	Introduction to machine learning	EthemAlpaydin	2020(4)	MIT press,Chennai.
3.	Machine Intelligence(Demystifying Machine learning, Neural networks and Deep learning)	Suresh Samudrala	2018(1)	Notion press,Chennai

Reference Books and Web References:

S. No.	Title of the Book	Author	Year(Edn)	Publisher’s
1.	Russell	Artificial Intelligence A Modern Approach	2015(3)	Pearson, Bangalore
2.	Richard Duda, PeterHart, David Stork	Pattern Classification	2007(2)	Wiley, New Delhi
3.	https://www.w3schools.com/			


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Objectives:

1.
2.
3.
4.
5.
- To obtain knowledge about the history and architecture of cloud computing.
- To address the core issues of cloud computing security.
- To get the clear understanding of cloud computing standards and services.
- To get insight about cloud programming.
- To gain knowledge about cloud services.

Programme : MCA		Subject : Computer Applications	
Course code:20PCAE22		Course Title: Cloud Computing	
Category	Elective - I	Credits	Hours: 4
Unit	Detailed Syllabus	Outcomes	Hour
1	Distributed System Models and Enabling Technologies: Scalable Computing over the Internet, Technologies for Network-Based Systems, System Models for Distributed and Cloud Computing, Software Environments for Distributed Systems and Clouds, Performance, Security and Energy Efficiency Computer Clusters for Scalable Parallel Computing: Clustering for Massive Parallelism, Computer Clusters and MPP Architectures, Design Principles of Computer Clusters, Cluster Job ad Resource Management	The students can 1. analyze the trade-offs between deploying applications in the cloud and over the local infrastructure. 2. compare the advantages and disadvantages of various cloud computing platforms. 3. deploy applications over commercial cloud computing infrastructures such as Amazon Web Services, Windows Azure, and Google App Engine.	12
2	Cloud Platform Architecture over Virtualized Data Centers: Cloud Computing and Service Models, Datacenter Design and Interconnection Networks, Architectural Design of Compute and Storage Clouds, Public Cloud Platforms GAE, AWS, and Azure, Inter-cloud Resource Management, Cloud Security and Trust Management	The students can 1. identify security and privacy issues in cloud computing. 2. solve a real-world problem using cloud computing through group collaboration. 3. solve the computational issues	12
3	Service-Oriented Architectures for Distributed Computing: Services and Service-Oriented Architecture, Message-Oriented Middleware, Portals and Science Gateways, Discovery Registries, Metadata and Databases, Work-flow in Service-Oriented Architectures.	The students can 1. describe service and service-oriented Architecture 2. analyse the components of open stack & Google Cloud platform 3. be familiar in Cloud Implementation, Programming	12
4	Cloud Programming and Software Environments: Features of Cloud and Grid Platforms, Parallel and Distributed Programming Paradigms, Programming Support of Google App Engine, Programming on Amazon AWS and Microsoft Azure, Emerging Cloud Software Environments.	The students can 1. describe the key components of Amazon web Service. 2. design & develop backup strategies for cloud data 3. be educated on addressing the security issues of cloud computing.	12
5	Ubiquitous Clouds and the Internet of Things: Cloud Trends in Supporting Ubiquitous Computing, Performance of Distributed Systems and the Cloud, Enabling Technologies for the Internet of Things, Innovative Applications of the Internet of Things, On-line Social and Professional Networking.	The students can 1. design different work flows according to requirements and apply map. 2. apply and design suitable Virtualization concept 3. assess cloud Storage systems and Cloud security, the risks involved, and develop cloud application.	12

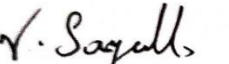
Text Books:

S. No.	Title of the Book	Author’s	Year(Edn)	Publisher’s
1.	Cloud Computing: Concepts, Technology & Architecture	Thomas Erl, Ricardo Puttini	2019(2)	Prentice Hall, New Delhi
2.	Cloud Computing: Master the Concepts, Architecture and	Kamal Kant Hiran, Ruchi Doshi, Temitay	2019(1)	BPB Publications,
3.	Cloud Computing – A Hands-on Approach	Arshdeep Bahga, Vijay Madiseti	2014(1)	University Press, Hyderabad

Reference Books and Web Links:

S. No.	Title of the Book	Author’s	Year(Edn)	Publisher’s
1.	Distributed and Cloud Computing	Kai Hwang, Geoffrey	2012(1)	Elsevier, Gurgaon
2.	Enterprise Cloud Computing	Gautam Shroff	2011(1)	Cambridge University Press,
3.	https://www.w3schools.com/			


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PCA-BOS-Sri Sarada College for Women, Tirunelveli 627011SEMESTER II

Programme: MCA	Subject: Computer Applications	
Course code: 20PCAE23	Course Title: Internet of Things	
Category: Elective – I	Credits:4	Hours: 4

Objectives:

1.
- To understand the fundamentals of Internet of Things
2.
- To be able to recognize the IOT networks.
3.
- To learn about the basics of IOT data link layer and network layer protocols
4.
- To understand the concept of IOT transport layer and session layer protocols
5.
- To gain knowledge about real world designs.

Unit	Detailed Syllabus	Outcomes	Hour
1	Overview: IoT -An Architectural Overview- Building an architecture, Main design principles and needed capabilities, An IoT architecture outline, standards considerations. M2M and IoT Technology Fundamentals- Devices and gateways, Local and wide area networking, Data management, Business processes in IoT, Everything as a Service(XaaS), M2M and IoT Analytics, Knowledge Management	The students can 1. know the fundamentals of IOT. 2. gain fundamental knowledge about the architectures of IOT. 3. get introduced to Networks associated with IOT.	12
2	Reference Architecture IoT Architecture: State of the Art – Introduction, State of the art, Reference Model and architecture, IoT reference Model – IoT Reference Architecture- Introduction, Functional View, Information View, Deployment and Operational View, Other Relevant architectural views. Real-World Design Constraints- Introduction, Technical Design constraints- hardware is popular again, Data representation..	The students can 1. know the architectures of IoT in detail. 2. recognize the networks associated with IoT in detail 3. understand data representation and visualization.	12
3	IoT Data Link Layer & Network Layer: PROTOCOLS PHY/MAC Layer(3GPP MTC, IEEE 802.11, IEEE 802.15), WirelessHART,Z-Wave,Bluetooth Low Energy, Zigbee Smart Energy, DASH7 - Network Layer-IPv4, IPv6, 6LoWPAN, 6TiSCH,ND, DHCP, ICMP, RPL, CORPL, CARP	The students can 1. know about Data link layer and Network layers in the network associated with IoT. 2. define the protocols of the networks. 3. analyse different kinds of protocols.	12
4	Transport & Session Layer Protocols: Transport Layer (TCP, MPTCP, UDP, DCCP, SCTP)-(TLS, DTLS) – Session Layer-HTTP, CAP, XMPP, AMQP, MQTT. SERVICE LAYER PROTOCOLS & SECURITY - Service Layer -oneM2M, ETSI M2M, OMA, BBF – Security in IOT Protocols – MAC 802.15.4 6LoWPAN, RPL, Application Layer	The students can 1. know about Transport Layer and Session layers in the network associated with IoT. 2. identify the Application Layer. 3. the protocols in Transport ,Session and network layers.	12
5	Case Studies: Real world design constraints - Applications - Asset management, Industrial automation, smart grid, Commercial building automation, Smart cities - participatory sensing - Data Analytics for IoT– Software & Management Tools for IoT Cloud Storage Models & Communication APIs - Cloud for IoT - Amazon Web Services for IoT. IoT tools:Tessel2- Eclipse IoT- Arduino- Platform IO- Raspbian-IBM Watson.	The students can 1. conduct the research in case studies in IoT. 2. analyse the case studies in IoT. 3. understand clouds of IoT like AWS.	12

Text Books:

S. No.	Title of the Book	Author’s	Year(Edn)	Publisher/s
1.	Internet of Things(Architecture,Protocol,Standards)	Simone cirani,Gianluigi Ferrari,Marco Picone,Lucaveltri	2019(1)	John Wiley & Sons Ltd,New Delhi
2.	Internet of Things (Technologies and applications for a new ageof Intelligence)	VlasiosTsiatsis,stamatiskarnouskos,JanHoller,DavidBoyle,Catherine Mulligan	2019(2)	Academic press imprint of Elsevier

Reference Books and Web References:

S. No.	Title of the Book	Author’s	Year(Edn)	Publisher/s
1.	Internet of Things	VlasiosTsiatsis, StamatisKarnouskas	2018(2)	Elsevier Publishers,UK
2.	Internet of Things – Ahands-on approach	ArshdeepBahga, VijayMadiset	2015(1)	Universities Press, Hyderabad
3.	https://www.w3schools.com/			


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Programme : MCA	Subject : Computer Applications	
Course code : 20PCAE24	Course Title: Mobile & Pervasive Computing	
Category : Elective – I	Credits : 4	Hours: 4

Objectives:

1.
- To gain knowledge about the history and business application of mobile and pervasive computing.
2.
- To be able to understand the device technology.
3.
- To gain knowledge about WAP and Voice Technology.
4.
- To know about information security algorithm of mobile computing.
5.
- To know about the mobile computing and its architecture.

Unit	Detailed Syllabus	Outcomes	Hour
1	Technologies: Past, Present, Future. The Vine and fig tree dream – Pervasive Computing – The pervasive computing market--Business. Application Examples: Retail – Airline check –in and booking – Sales force automation – Healthcare – Tracking – Car Information systems – Email access via WAP and Voice.	The students can 1. discover the characteristics of pervasive computing. 2. understand objectives and quality of services, major systemcomponents and architectures ofthe systems 3. discover the basic problems, performance requirements.	12
2	Device Technology: Hardware – Human – machine interfaces - Biometrics – Operating systems – Java for Pervasive device – Outlook.	The students can 1. know the trends of pervasive computing and its impacts . 2. analyse the strengths and limitations of the tools and devices for development of pervasive computing systems 3. explore the characteristics of different types of mobile networks on the performance ofa pervasive computing system.	12
3	DeviceConnectivity: Protocols – Security – Device management. Web Application concepts:History of the World Wide – World Wide Web architecture – Protocols – Transcoding – Client authentication via the internet.	The students can 1. investigate the basic techniques and algorithms for designing pervasive computing systems 2. understand management of temporal and sensor data andreal-time scheduling 3. analyze and compare the performance of algorithms formobile real-time applications.	12
4	WAP and Beyond: Introduction – Componentsof the WAP architecture – WAP infrastructure –WAP security Issues – Wireless Markup Language – WAP push – Products – i-mode – Outlook. Voice Technology: Basic of speech recognition – Voice standards – Speech application – Speech pervasive Computing – Security.	The students can 1. analyze the performance of different sensor data management 2. develop an attitude to propose solutions related to pervasive computing. 3. know current trends in mobileand pervasive computing.	12
5	Background: Scalability and availability – Development of pervasive computing Web Applications – Pervasive application architecture.	The students can 1. get practical experience in thearea through the design 2. know the basics of Mobile computing environment andsecurity. 3. know the concepts of tracking management	12

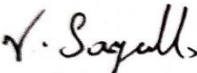
Text Books:

S. No.	Title of the Book	Author’s	Year(Edn)	Publisher/s
1.	Pervasive Computing, Technology& Architecture of Mobile Internet	JochenBurkhardt,Horst Henn et. Al	2012(11)	Pearson, Bangalore
2.	Mobile Computing	Raj Kamal	2012(2)	Oxford University Press, New Delhi

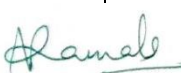
Reference Books& Web Links:

S. No.	Title of the Book	Author’s	Year(Edn)	Publisher/s
1.	Mobile Computing	Asoke K Taluhdar, Roopa R Yavagal	2011(1)	Tata McGrawHill, New Delhi
2.	Mobile Computing	Asoke K Talukder, Hasan Ahmed,Roopa R Yavagal	2010 (1)	Tata McGraw Hill, New Delhi
3.	https://www.w3schools.com/			


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Programme: MCA		Subject : Computer Applications	
Course code: 20PCAL21		Course Title: Advanced Java Programming Practicals	
Category : Core Practical – 3	Credits : 2	Hours: 5	

1.

To determine the order of numbers generated randomly using Random Class

2.

To implement Point Class for Image manipulation 3.To implement Calendar Class and manipulation 4.To implement String Manipulation using Char Array

5.

To use Database Creation for storing e-mail addresses and manipulation

6.

To work with sage of Vector Classes

7.

To Implement Thread based applications & Exception Handling (Synchronization & Asynchronization)

8.

To work with Frames and various controls

9.

To work with Dialogs and Menus

10.

To work with Panel and Layout

11.

To Incorporate Graphics (Scaling Only)

12.

To create Application Using JDBC Connectivity

13.

To create HTML to Servlet Applications

14.

To work with Servlet to Applet communication

15.

To create programs using RMI(Remote Method Invocation) to access a remote method

16.

To create program using servlets.

17.

To create programs using servlet and jdbc.

18.

To create program using java beans.

19.

To create a program for data socket.

20.

To implement a client and server application using TCP and UDP approach.

21.

To write a program in java to create a form and validate a password using Jsp.

22.

To create a java applet program using swing components(using event handling)

23.

To create java program using AWT-I components.

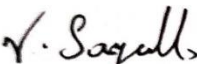
24.

To create a java program using AWT-II components.

25.

To create a applet program to display a simple message.


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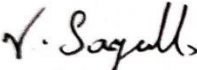

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	Programme : MCA	Subject : Computer Applications	
	Course code: 20PCAL22	Course Title: RDBMS Practicals	
	Category: Core Practicals-4	Credits : 2	Hours: 5
1.	To Create a Table using SQL queries		
2.	To implement Numeric Functions		
3.	To Implement String Functions in sql		
4.	To implement Date Functions using sql queries		
5.	To develop a SQL program to display the Doctor and Patient Details		
6.	To develop a SQL program to display the Student Details		
7.	To develop a SQL program to create views		
8.	To implement Subqueries		
9.	To create a SQL program to implement Join and Set operations		
10.	To create Index and Sequence		
11.	To create student and Employee using partition		
12.	To implement a program to create an object and nested table in PL/SQL		
13.	To create a program to Manipulate LOB Values		
14.	To create a program to Copy and erase LOB Values		
15.	To create a program to display the Multiplication Table		
16.	To create a program to evaluate the Sum of N number		
17.	To implement a program to print the Factorial of a given Number		
18.	To implement a program to print the Fibonacci Series		
19.	To implement a program to calculate the Simple and compound Interest		
20.	To implement a program to calculate the Gross pay and Net pay Calculation		
21.	To implement a program to Update Employee Salary		
22.	To palindrome check using Function		
23.	To create a program to calculate the Discount on Purchased Products		
24.	To create a program to check whether the Department ID found or not using Function		
25.	To create a program to Display Student details using procedure		


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Objectives:

1.

2.

3.

4.

5.
- To understand the basic concepts of accounting, preparation of journal, ledger and balance sheet.

To gain knowledge about financial management, financial statement and ratio analysis.

To understand the importance of cost accounting.

To gain knowledge about marginal costing and its importance.

To describe how machines are used in Mechanized accounting field.

Unit	Detailed Syllabus	Outcomes	Hour
1	Principles, Accounting concepts: Methods of recording the Journal, the ledger, Balancing the ledger, trial balance and preparation of Trial Balance. Final accounts - preparation of Trading, profit and loss account and Balance sheet of Sole trader concern with normal closing entries. Financial Management - Meaning - Objectives - Scope.	The students can 1. understand the fundamentals of Accounting and Financial Management. 2. have ability to do Journal, Ledger Able and Trial Balance. 3. have ability to do trading , Profit and loss account and Balance sheet.	12
2	Ratio Analysis: Meaning - classifications of ratios - Profitability .ratios - Turnover ratios- Financial ratios - Advantages - Limitations - Practical problems. Fund Flow Analysis - Meaning of the term Fund, Fund flow, Working capital, statement of changes in working capital - preparation of fund Flow statement, practical problems	The students can 1. understand the fundamentals of Ratio analysis and its Classification. 2. prepare funds flow statement and Cash flow statement. 3. understand the fundamentals of funds flow analysis and Cash flow analysis.	12
3	Cost Accounting: Meaning of Costing, Cost Accounting - Scope - importance, Cost classification - preparation of Cost sheet. Budget and Budgetary Control - Meaning, Budget, Budgetary, control- Advantages - Limitations - preparation of budgets - viz., production, budget, sales budget, purchase budget, flexible budget, Cashbudget.	The students can 1. understand the basic concepts of Cost accounting and Cost classification. 2. prepare the Cost sheet. 3. be familiar in the preparation of budgets and budgetary control.	12
4	Marginal Costing: Nature - Scope - importance - Break-even point - Break even chart - PN ratio - Marginal costing and Management decisions - \ viz. Make or buy, shut down or continue, expand or contract, Sales-mix decisions, Product replacement decisions, change, V. s. status quo, Capital Expenditure decisions - practical problems. Standard Costing and Variance analysis - nature, scope, uses, Computation and analysis of variances with reference to material - Cost and Labor cost.	The students can 1. understand the Marginal Costing and Management decisions. 2. know the standard costing and variance analysis. 3. diagnose practical problems and Expenditure decisions.	12
5	Introduction to Computer Accounting: Coding - Master Files - transaction files – documents used for data collection - processing of different files - outputs obtained.	The students can 1. understand the need of computer in accounting. 2. understand coding, master files and transaction files. 3. have ability of processing different files.	12

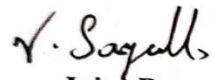
Text Books:

S. No.	Title of the book	Author’s	Year(Edn)	Publisher/s
1	Advanced Accounting	S.P. Jain and KL. Narang	2008(1)	Kalyani publishers, New Delhi
2	Financial Management	I M Pandey	2016(11)	Vikas Publishing House, Chennai

Reference Books:

S. No.	Title of the book	Author’s	Year(Edn)	Publisher/s
1	Management Accounting	R.S.N. Pillai, V. Bagavathi	Revised Edition 2010	S Chand, New Delhi
2	Management Accounting	Bhattacharyya Debarshi	2011(1)	Pearson Education Bangalore
3	Advanced Accounting: Theory & Practice	Jayaprakash Reddy	2004(1)	APH Publishing Corporation, New Delhi


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Objectives:

1. To conceptualize all the OSI Layers
2. To gain knowledge about data link and flow control.
3. To use the appropriate network tools to build network topologies
4. To provide students with an overview of the concepts and fundamentals of data communication and computer networks.
5. To know about the application and security services

Programme : MCA	Subject : Computer Applications
Course code: 20PCAC32	Course Title: Computer Networks
Category To: Core-III	Credits : 4
	Hours: 4

Unit	Detailed Syllabus	Outcomes	Hour
1	Uses of Networks: Categories of Networks -Communication model – Data transmission concepts and terminology – Protocol architecture – Protocols – OSI – TCP/IP – LAN Topology - Transmission media	students can 1. identify the components required to build different type of networks. 2. choose the required functionality at each layer for given an application. 3. specify and identify deficiencies in existing protocols, and then go onto formulate new and better protocols	12
2	Data link control: Flow Control – Error Detection and Error Correction -MAC – Ethernet, Token ring, Wireless LAN MAC – Blue Tooth – Bridges	students can 1. trace out the flow of information from one node to another node in the network. 2. analyze the requirements for organizational structure and select the most appropriate networking architecture and technologies. 3. have a basic knowledge in the use of cryptography and network security.	12
3	Network layer: Switching concepts – Circuit switching – Packet switching – IP – Datagrams – IP addresses- IPV6 – ICMP – Routing Protocols – Distance Vector – Link State- BGP.	students can 1. find out the categories of networks 2. have an understanding of the issues surrounding Mobile.. 3. have a working knowledge of datagram.	12
4	Transport layer: Service –Connection establishment – Flow control – Transmission control protocol – Congestion control and avoidance – User datagram protocol. -Transport for Real Time Applications (RTP).	students can 1. explain how communication works in data networks and the Internet. 2. recognize the different internetworking devices and their functions. 3. realize the role of protocols in networking.	12
5	Applications: DNS- SMTP – WWW –SNMP- Security –threats and services - DES- RSA- web security –SSL	students can 1. analyze the services and features of the various layers of data networks. 2. design, calculate, and apply subnet masks and addresses to fulfill networking requirements. 3. analyze the features and operations of various application layer protocols such as HTTP, DNS, and SMTP	12

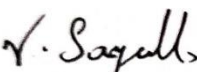
Text Books:

S. No.	Title of the book	Author	Year(Edn)	Publisher/s
1.	Computer Networking: The Complete Guide to Understanding Wireless Technology, Network Security, Computer Architecture and Communications Systems	Michael B.White	2018(1)	Newstone Publishing
2.	Data Communications And Computer Networks	Prakash C. Gupta	2014(2)	PHI Learning, New Delhi

Reference Books & Web Links:

S. No.	Title of the book	Author’s	Year(Edn)	Publisher/s
1.	Computer Networking: A Top-down Approach	James F. Kurose, Keith W. Ross	2012(6)	Pearson Education, Limited, Bangalore
2.	Computer Networks	Andrew S. Tanenbaum, David J. Wetherall	(5)	Pearson Education, Bangalore
3.	https://www.w3schools.com/			


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PCA-BOS-Sri Sarada College for Women, Tirunelveli 627011SEMESTER III

Programme: MCA	Subject : Computer Applications	
Course code: 20PCAC33	Course Title: Programming in Python	
Category : Core – 12	Credits : 4	Hours: 4

Objectives:

1.
- To gain knowledge about the principles python programming.
2.
- To write clear and effective python code using control statements
3.
- To learn how to use classes and object in python.
4.
- To gain knowledge about concept of exception handling.
5.
- To create applications using python programming.

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction to Python: Features of Python, Python Virtual Machine, Memory management in Python, Comparison between C and Python. Writing and execution of a Python program, Input & Output statements. Datatypes – Strings and Characters – Creating Strings, Escape Characters, String formattingoperators, String formatting functions. Operators - Arithmetic, Assignment, Unary minus, Relational, Logical, Boolean, Bitwise, Membership and Identity Operators, Mathematical functions. Lists and Tuples	The students can 1. understand the strengths and weaknesses of Python Language. 2. know the data types in Python. 3. demonstrate on Built in functions.	12
2	Control statements and Conditional Statements. Arrays-creating an array, Importing the array module, Indexing and Slicing on arrays, Types of arrays, Working with arrays using numpy, Mathematical operations on arrays. Functions – Function definition, Function call, Returning from a function, Returning multiple values, Function arguments-formal & actual, positional, keyword, default, variable length arguments, Local & Global variables, passing a group of elements to a function, Recursive functions, Anonymous functions or Lambdas.	The students can 1. know the language components 2. illustrate the operators in Python 3. understandthe concept Control Flow.	12
3	Classes and Objects: Creating a Class, the self-variable, Constructor, Types of variables, Namespaces, Types of Methods, Passing members of one class to another class, Inner classes, Inheritance and Polymorphism- Constructors in Inheritance, Overriding super class constructors and Methods, the super() Method, Types of Inheritance. Polymorphism.	The students can 1. find out the classes and objects in Python. 2. understand inheritance and Polymorphism. 3. know about Exception Handling.	12
4	Exceptions: Errors in Python Programing, Exceptions, Exception handling, Types of Exceptions, except block,assert statement, user defined exceptions, logging Exceptions. Files-Types, Opening and Closing a file, working with text and binary files, Knowing whether a file exist or not, with statement, Pickles, seek() and tell methods, Working with Directories, Regular expressions, Sequence characters, Quantifiers and Special Characters in regular expressions, using regular expressions on files.	The students can 1. be familiar in Exception Handling and types of Exceptions 2. differentiate between sequence characters andspecial characters 3. know about standardmodules.	12
5	Introduction to Raspberry Pi: About the hardware, Raspberry Pi pin out, Interfacing with the Raspberry Pi-Controlling the brightness of an LED, Toggling with a push switch, Make a buzzing sound, Switching a high power DC device using a transistor, Speed Control of DC motor, Measuring Light using SPI, Measuring Temperature using I2C.	The students can 1. access database usingpython programming. 2. develop web applications using python 3. developingpython.	12

Text Books:

S. No.	Title of the book	Author	Year(Edn)	Publisher/s
1	Core Python Programming	Dr. NageswaraRao	2017(2)	Dreamtech Press.
2	Introduction to Computing and Problem Solving Using Python.	E Balaguruswamy	2017(1)	McGraw Hill,New Delhi

Reference Books & Web Links:

S. No.	Title of the book	Author’s	Year(Edn)	Publisher/s
1	Introduction to Computing& Problem Solving with Python	Dr. Jeeva Jose,	2019(1)	Khanna Publishing
2	Introduction to Computing Using Python	Ljubomir, Perkovic	2015(2)	Wiley,New Delhi
3	http://learning-python.com			


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Objectives:

1. The students can understand about .NET programming frame works like ASP.NET.
2. To gain information about the various web controls and validation controls
3. To know the use of templates with data list and understand the basic concepts of c#.
4. To gain knowledge about ADO.Net.
5. To be able to develop web applications.

Programme : MCA	Subject : Computer Applications
Course code:20PCAC34	Course Title: .NET Programming
Category	Credits
13	4
1	1
2	1
3	1
4	1
5	1

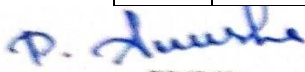
Unit	Detailed Syllabus	Outcomes	Hour
1	ASP.NET applications: ASP.NET file types- Three ways to code web forms-ASP.NET configuration web form fundamentals: A simple page applet- Improving the currency converter-A deeper Look at HTML control classes- The page class	students can 1. explore Visual Basic's Integrated Development Environment (IDE). 2. understand the basic concepts of HTML control classes. 3. apply applet in ASP forms	12
2	Web controls: stepping up to web controls-web control classes-Auto Post back and web control events – A simple web page applet –Assessing web controls. Validation and rich controls: The calendar control- Formatting the calendar-Restricting Dates-The Adrotator-The advertisement file-The Adrotator class validation –The validation controls-The validation process- The validator class –A simple validation example	students can 1. develop program using VB.NET 2. build website using ASP.NET. 3. create mobile applications using .NET compact framework.	12
3	The data list: Data grid & repeater: Introducing Templates –Using Templates with the data list –Data binding with multiple Templates-comparing the Template controls –preparing your list for selection & Editing –selecting items-Editing items –paging & sorting with the Data grid. Introduction to c#- overview of c#- literals, variables, data types, operators-Expressions, branching, looping-object oriented aspects of c#.	students can 1. create pages using data list and data grid. 2. acquire the knowledge of Template controls. 3. experience with paging &sorting with the Data grid	12
4	Overview of ADO.NET: Introducing ADO.NET and data management-characteristics of Ado.NET –The ADO.NET object model. ADO.Net Data Access: SQL Basics –The SQL select statement-The SQL update statement-The SQL Insert statement-The SQL delete statement-Accessing, creating a connection –Defining a select command –updating data –Accessing Disconnected data-selecting Multiple Tables- Modifying Disconnected Data-Updating Disconnected Data.	students can 1. get knowledge of ADO.NET 2. gain experience with SQL statements. 3. develop the programs using ADO.NET and SQL.	12
5	Web based applications: Configure ASP.NET applications-handling events-user interface with server controls-validation controls-working with master web pages and themes-line programming model-displaying and manipulating data-maintaining state-consuming web services-securing ASP.NET applications- Deploying ASP.NET applications.	students can 1.able to create web applications. 2.understand the concept of handling events. 3.gain knowledge about linq programming model.	12

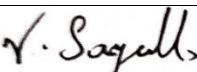
Text Books:

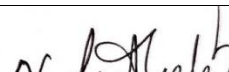
S. No.	Title of the Book	Author	Year(Edn)	Publisher/s
1	ASP.NET-The complete reference	Matthew Macdonald	2017(3)	Tata McGraw Hill, New Delhi
2	Programming ASP.NET Core Developer Reference	Dino Esposito	2018(1)	Microsoft Press.
3	Learning ASP.NET Core MVC Programming	Mugilan T. S. Ragupathi	2017 (1)	Packt Publishing,Mumbai.

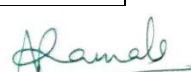
Reference Books & Web Links:

S. No.	Title of the Book	Author	Year(Edn)	Publisher/s
1	Pro ASP.NET Core MVC 2	Adam Freeman	2017(7)	Apress, New Delhi
2	Hands on with ASP.NETMVC: Covering MVC 6	Rahul Sahay	2014(1)	Quills Ink Publishing
3	https://docs.microsoft.com/en-us/aspnet/			


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Objectives:

1. To be able to work with big data platform and analyse the big data analytics techniques for useful business applications.
2. To understand about the HADOOP and Map Reduce technologies associated with big data analysis.
3. To know the architectural setup involved in big data analytics.
4. To be able to explore data analysis with spark.
5. To gain knowledge about Mongolia DB.

Programme : MCA		Subject : Computer Applications	
Course code:20PCAE31		Course Title: Big Data Analytics	
Category	Elective - 2	Credits	Hours: 4
To be able to work with big data platform and analyse the big data analytics techniques for useful business applications.			
To understand about the HADOOP and Map Reduce technologies associated with big data analysis.			
To know the architectural setup involved in big data analytics.			
To be able to explore data analysis with spark.			
To gain knowledge about Mongolia DB.			
Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction to big data: Introduction - distributed file system - Big Data and its importance - Four Vs. - Drivers for Big data -Big data analytics - Big data applications. Algorithms using map reduce.	students can 1. identify Big Data and its Business Implications. 2. access and Process Data on Distributed File System. 3. analyze the HADOOP and Map Reduce technologies associated with big data analytics .	12
2	Introduction to hadoop and hadoop architecture: Big Data - Apache Hadoop&HadoopEcoSystem - Moving Data in and out of Hadoop - Understanding inputs and outputs of MapReduce - Data Serialization	The students can 1. get clear knowledge of moving Data in and out of Hadoop 2. develop Big Data Solutions using Hadoop Eco System. 3. analyze Big Data Recommendations.	12
3	HDFS, HIVE AND HIVEQL, HBAS: HDFS - Overview - Installation and Shell, Java AP - Hive Architecture and Installation - Comparison with Traditional Database - HiveQL - Querying Data - Sorting and Aggregating - Map Reduce Scripts - Joins& Sub queries - HBase concepts - Advanced Usage - Schema Design - Advance Indexing - PIG, Zookeeper - how it helps in monitoring a cluster - HBas uses Zookeeper and how to Build Applications with Zookeeper	students can 1. describe on Hive Architecture and Installation 2. gain knowledge about Querying Data 3. be familiar in the Principles of schema design	12
4	Spark: Introduction to Data Analysis with Spark- Downloading Spark and Getting Started - Programming with RDDs – Machine Learning with MLlib - Learning with MLlib.NoSQL:What is it? - Where It is Used - Types of NoSQL databases - Why NoSQL? - Advantages of NoSQL - Use of NoSQL in Industry- SQLvsNoSQL–NewSQL.	students can 1. analyze the concepts of big data using intelligent techniques and its applications. 2. explore on Big Data applications using Pig and Hive. 3. recognize the HADOOP and Map Reduce technologies associated with big data analytics.	12
5	Data Base for the Modern Web: Introduction to MongoDB- key features - Core Server tools - MongoDB through the JavaScript’s Shell - Creating and Querying through Indexes – Document Oriented - principles of schema design - Constructing queries on Databases - collections and Documents - MongoDB Query Language.	students can 1. solve the complex real-world problems in decision support. 2. apply dimensionality reduction techniques and Design application using machine learning techniques. 3. illustrate collections and Documents	12

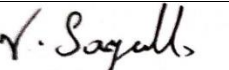
Text Books:

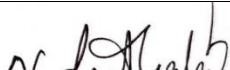
S. No.	Title of the Book	Author’s	Year(Edn)	Publisher/s
1.	Big Data Analytics	Peter Ghavami	2020(2)	Walter de Gruyter Inc,Boston/Ber
2.	Modern a3 Processing with Hadoop	V.NareshKumar,PrashantShindgikar	2018(1)	PacktPublishing,Birmingham-Mumbai

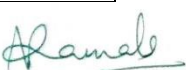
Reference Books and Web Links:

S. No.	Title of the Book	Author’s	Year(Edn)	Publisher/s
1.	Professional Hadoop	BenoyAntony,KonstaninBoudnik,CherylAdams,BrankyShao,CazenLee,Kai Sasaki	2016	Wiley, Noida
2.	MongoDB in Action	Douglas peter Bakkum Kyle Banker Shaun Verch	2016(2)	Manning Publications, New York
3.	www.tutorialspoint.com			


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Objectives:

1. To understand the basics of Artificial Intelligence.
2. To learn predicate knowledge and its applications.
3. To learn the knowledge representation logics.
4. To be able to solve the problems using supervised learning and unsupervised learning.
5. To learn the Natural language processing with advanced features of the Python Programming.

Programme : MCA	Subject : Computer Applications		
Course code: 20PCAE32	Course Title: Artificial Intelligence		
Category : Elective - 2	Grade : 1	Hours:4	
Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction to Artificial Intelligence: What is Artificial Intelligence (AI)? History of AI- AI and Society- Agents- Knowledge Based Systems- Exercises.Propositional Logic: Syntax- Semantics- Proof systems- Resolution- Horn Clauses – Computability and Complexity- Applications and Limitations- Exercises.	students can 1. understand the evolution of Artificial Intelligence. 2. identify the agents of AI. 3. apply the concepts of Propositional logic.	12
2	Syntax: Semantics- Quantifiers and Normal Forms- Proof Calculi- Resolution- Automated Theorem provers- Mathematical Examples – Applications.Limitations of Logic- The Search space problem- Decidability and Incompleteness- The Flying Penguin- Modeling Uncertainty- Exercises	students can 1. implement the predicate logic semantics. 2. understand and apply the concepts of mathematical logic. 3. realize the limitations of logics in real time applications.	12
3	Knowledge Representation: Taxonomic Logic- Semantic Nets- Model of Human Organization of Knowledge. Frames: Frame Data Structure- Planning a Trip using Frames. Non-Monotonic Logic: Circumscription- Default Logic- Difficulties.	students can 1. understand the concept of Knowledge representation. 2. recognize the use of frames in real time applications. 3. recognize the non-monotonic logic and its difficulties in implementation	12
4	Deterministic Models: Supervised Learning- Regression- Parameter Estimation- Learning a decision tree.Unsupervised and Reinforcement learning: Unsupervised Learning: Clustering- Automated discovery. Reinforcement Learning: Multi-armed bandit algorithms- Dynamic networks.	students can 1. have ability to differentiate between deterministic and non-deterministic models. 2. understand the applications of supervised learning methods in real time 3. recognize reinforcement learning methods, algorithms and its applications.	12
5	Natural Language Processing: Introduction and installation of packages -Tokenizing text data -Converting words to their base forms using stemming- Converting words to their base forms using lemmatization -Dividing text data into chunks -Extracting the frequency of terms using a Bag of Words model -Building a category predictor -Constructing a gender identifier -Building a sentiment analyzer -Topic modeling using Latent Dirichlet Allocation	students can 1. understand the basics of Natural Language Processing 2. apply NLP concepts with python programming language. 3. design python programs for NLP application.	12

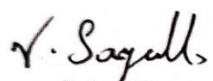
Text Books:

S. No.	Title of the book	Author’s	Year(Edn)	Publisher/s
1.	Introduction to Artificial Intelligence	Wolfgang Ertel	2018(2)	Springer Publications.
2.	Artificial Intelligence: With an Introduction to Machine Learning	Richard E. Neapolitan, Xia Jiang	2018(2)	CRC Press.

Reference Books & Web Links:

S. No.	Title of the book	Author’s	Year(Edn)	Publisher/s
1.	Artificial Intelligence: A Modern Approach	Stuart Russell, Peter Norvig	2016(3)	Pearson Publications, New Delhi
2.	Artificial Intelligence and Machine Learning	Vinod Chandra S.S., AnandHareendran S.	2014(1)	PHI Learning Pvt. Ltd, New Delhi.
3.	https://www.zdnet.com/article/what-is-ai-everything-you-need-to-know-about-artificial-intelligence/			


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Objectives:

1. To understand the basics of Neural Networks and its techniques.
2. To be able to solve problems using back propagation network.
3. To gain knowledge about simulated annealing and CPN data processing.
4. To discover knowledge inSelf Organizing Map.
5. To design and deploy classification.

Programme : MCA	Subject : Computer Applications
Course code :20PCAE33	Course Title: Neural Networks
Category : Elective - 2	Credits : 4
Hours: 4	

Unit	Detailed Syllabus	Outcomes	Hour
1	Introduction to ANS Technology: Elementary Neurophysiology – From Neuron to ANS – ANS simulation – Adaline and Madaline: Review of Signal Processing – Adaline and the Adaptive Linear Combine – Applications of Adaptive Signal Processing – The Madaline – Simulating the Adaline	students can 1. get a brief overview of Neural Network 2. understand how Adaptive signal processing is applied toNeural Network 3. get the knowledge of Adalineand Madaline.	9
2	Back propagation: The Back propagation Network – The Generalized Delta Rule – Practical Considerations – BPN Applications – The Backpropagation Simulator – The BAM and the Hopfield Memory: Associative Memory Definitions – The BAM – The Hopfield Memory – Simulating the BAM .	students can 1. identify the Back propagation network which are more appropriate. 2. know generalized delta rule and how it will be useful for real life. 3. implement BAM , Hopfield Memory and solved real worldproblems..	9
3	Simulated Annealing: Information Theory and Statistical Mechanics – The Boltzmann Machine – The Boltzmann Simulator – Using the Boltzmann Simulator – The Counter propagation Network: CPN Building Blocks – CPN Data Processing – An Image-Classification Example – The CPN Simulator.	students can 1. know about the concepts of information theory 2. design and implement the Boltzmann simulator 3. get knowledge of image classification	9
4	Self-Organizing Maps: SOM Data Processing – Applications of Self – Organizing Maps – Simulating the SOM – Adaptive Resonance Theory: ART Network Description – ART1 – ART2 – The ART1 Simulator – ART2 Simulation.	students can 1. define Self-Organizing Maps. 2. gain full-fledged knowledge of ART Network 3. identify the major categories of ART Network	9
5	Spatiotemporal Pattern Classification: The Formal Avalanche – Architecture of Spatiotemporal Networks (STPS) – The Sequential Competitive Avalanche Field – Applications of STNS – STN Simulation – The Neocognitron: Neocognitron Architecture – Neocognitron Data Processing – Performance of the Neocognitron – Addition of Lateral Inhibition and Feedback to the Neocognitron.Convolutional neural network: Architecture overview- Convolutional layer, pooling layer, normalization layer, fully connected layer-Convolutional network architectures: layer patterns, layer sizing pattern.	students can 1. design the architecture of Spatio Temporal Networks 2. explain the Neo-cognitron Architecture 3. analyze the Sequential Competitive Avalanche (SCA)	9

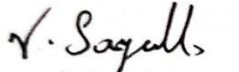
Text Books:

S. No.	Title of the Book	Author’s	Year(Edn)	Publisher/s
1.	Artificial Neural networks Model and Applications	Joao Luis Garcia Rosa	2016(1)	InTech,Croatia
2.	Neural Networks with R	Giuseppe Ciaburro,BalajiVenkatesw aran	2017(1)	PacktPublishing,Birmi ngham-Mumbai

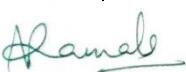
Reference Books and Web Links:

S. No.	Title of the Book	Author’s	Year(Edn)	Publisher/s
1.	Neural Networks and Statistical Learning	Ke Lin Du,M.n.S.Swamy	2019(2)	Springer
2.	Deep Learning	Ian Good fellow,Yoshuabengio,Aaroncourville	2016(1)	MIT press,England
3.	http://www.openculture.com/neural-networks-for-machine-learning-a-free-online-course			


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PCA-BOS-Sri Sarada College for Women, Tirunelveli 627011SEMESTER III

Objectives:

1. To understand the functionality of 8085 microprocessors.
2. To acquire knowledge about 8051 microprocessor.
3. To get the basic knowledge of microprocessor and input output interfacing.
4. To acquire knowledge of real time operating systems and implement real time functions.
5. To illustrate the case studies of embedded systems.

Programme : MCA	Subject : Computer Applications
Course code :20PCAE34	Course Title : Embedded Systems
Category : Elective - 2	Credits : 4
Hours: 4	

Unit	Detailed Syllabus	Outcomes	Hour
1	Evolution Of Microprocessors: 8-Bit Processor - 8085 Architecture – Register Organization - Instruction Set – Timing Diagram- Addressing Modes – Interrupts- Interrupt Service Routines- Assembly Language Programming Using 8085	The students can 1. know the introduction about 8-bit processing unit 2. know briefly about 8085 Architecture with the flowdiagram 3. analyze the programming techniques with 8085	9
2	Embedded Systems: Processor Embedded Into A System-Embedded Hardware And Software Units- Applications-Design Process – Intel 8051 Architecture- Processor And Memory OrganizationInterrupts Of 8051 - Assembly Language Programming Using 8051	The students can 1. gain knowledge of the processors in embedded system 2. summarize the hardware and software applications in embedded system 3. know about 8051 intel architecture with programminglanguage	9
3	Input-Output Interfacing: Bus Standards – PCI – ISA – Timing And Control – Input Output Devices – Serial And Parallel Communication – Motor Control- Programming Display Devices – ARM Architecture	The students can 1. understand the Labeling of input and output interfacing methods with the I/O devices 2. understand about networking in embedded systems 3. gain knowledge about programming devices andARM architecture	9
4	Basic Functions: Types Of RTOS – RTOS µCOS – RTLinux – Real Time Linux Functions- Programming With RT Linux – Case Study	The students can 1. identify RTOS and its types 2. study the functions in RT Linux 3. apply the RT Linux for programming languages	9
5	Embedded System Application and Development: Case:Study of Washing Machine-Automotive Application-Smart Card System Application-ATM Machine-Digital CameraEmbedded C embedded system programming:Introduction-Datatypes bit manipulation-Interfacing C with assembly-embedded programming issues- Reentrancy, portability- Optimizing-Testing embedded C programs,	The students can 1. illustrate the case study of washing machine to develop the embedded system 2. explain the Smart card application system to understand the embeddedsystem 3. discuss the ATM machine and Digital camera application	9

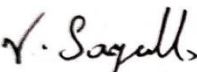
Text Books:

S. No.	Title of the Book	Author	Year(Edn)	Publisher/s
1.	Microprocessors and Microcontrollers:for Learners	Global Techno	2018(1)	Independently published by Global Techno
2.	Real Time Embedded Systems	JiacunWang	2017(1)	Wiley,Noida

Reference Books & Web Links:

S. No.	Title of the Book	Author’s	Year(Edn)	Publisher/s
1.	Embedded computing for high performance	Joao M.P.Cardosa,Jose Gabriel F.Coutinho,PedroC.Diniz	2017(1)	Elsevier Inc
2.	Real Time Embedded systems	Christos koulamas,Mihai.T.Lazarescu	2019(1)	MDPI
3.	https://deepbluembedded.com/embedded-systems-tutorials/			


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PCA-BOS-Sri Sarada College for Women, Tirunelveli 627011SEMESTER III

	Programme : MCA	Subject : Computer Applications
	Course code: 20PCAL32	Course Title: .NET Programming Laboratory
	Category : Core Practical - 4	Credits : 2
	To reverse the given number	Hours: 4
1.		
2.	To check whether the given number is an Armstrong Number or Not	
3.	To check whether the given number is odd or even number	
4.	To create and sort an array	
5.	To create a program to get array length	
6.	To create a string array	
7.	To reverse an array	
8.	To use Label control	
9.	To use Access key	
10.	To develop and set change Meta keywords programmatically	
11.	To implement and use button control as HTML server control	
12.	To create null value parameters in sql data source	
13.	To create and change Grid view font name	
14.	To develop and change Grid view font text size programmatically.	
15.	To set change Grid view font text (Fore color) color programmatically.	
16.	To set change Grid view row back color programmatically	
17.	To create a change Grid view row back color programmatically	
18.	To use link button	
19.	To convert Int32() convert.Tostring()	
20.	To get the student details	
21.	To create and print the EB bill	
22.	To demonstrate the arithmetic operator (+,-/,*, %)	


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During this semester the students are expected to do literature survey, formulate the problem and form a methodology of arriving at the solution of the problem. Also during this semester, the students are expected to complete the project and submit a full-fledged report comprising of the complete system developed along with implementation and test results. The departmental committee shall examine the students for 100 marks and the evaluation is based on continuous internal assessment comprising of three reviews.

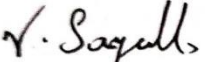
Programme: MCA	Subject : Computer Applications
Semester: 2018-2019	Expected Project Hours: 6
Category: Project-I	Credits: 4

Internal Assessment Component	Marks
I Review	10
II Review	10
Final Review	10
Report	20
Total	50

A Vivo-voce will be conducted by External Examiners and themarks shall be contributed as per the under mentioned components.

External Assessment Component	Marks
Presentation and Execution	20
Report	20
Viva-Voce	10
Total	50


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PCA-BOS-Sri Sarada College for Women, Tirunelveli 627011SEMESTER IV

Programme : MCA	Subject : Computer Applications	
Course code: 20PCAP41	Course Title: Project 2	
Category : Project 2	Credits : 16	Hours: 30

During this semester the students are expected to do the industrial pojectie. outside the campus.Alsoduring these yearly semesters, the students are expected to complete the internship. They involve inproject work and submit a full-fledged report comprising of the complete system developed alongwith implementation and test results. The departmental committee shall examine the students for100 marks, the external evaluation for 100 marks and finally the average to be calculated.
(Final Marks: 100)

Internal Assessment Component	Marks
Summer Internship	10
Winter Internship	10
Journal Publication	10
I review	20
II review	20
III Review	20
Pre-Review	10
Total	100

A Vivo-voce will be conducted by two External Examiners and themarks shall be contributed as per the under mentioned components.

External Assessment Component	Marks
Report	40
Presentation	30
Viva	30
Total	100


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Project Guidelines

(For Certificate, Diploma, Advanced Diploma, UG, PG, and MPhil., programmes)

1. Duration of the project work shall be for a period of one semester
2. Project work shall be carried out under the supervision of a faculty member of the department concerned or from allied department, if the work is of interdisciplinary in nature or with internal or external expert beyond the department as co-supervisor.
3. The supervisor allocation shall be made by lot by the end of 4 semester in UG, by the end of 2ndsemester in PG (April 1st week) and for MPhil., 15 days after joining the programme. The allocation details may be sent to Autonomous cell by 10th April for UG & PG and for MPhil., 30 days after joining the programme.
 - a. After allocation, the respective supervisors have to conduct orientation/counsel meeting with the assigned candidates about the project with P3 agenda (Participation, Presentation, and Publication) towards career prosperity. Subject Knowledge towards Pure and Applied part may be highlighted for doing the project.
 - b. The HoD shall review the coverage of different fields of the subject amongst the candidates and to see that the students should not focus on particular fields alone.
4. The candidates have to study/refer journals/previous works/focus on the proposed topic in the summer vacation and 5-10 titles of proposed project on respective subject (discipline) or on allied subject (interdisciplinary) with economic/scientific/social/local/state/national/globalissues may be submitted to the guide by May end.
5. The supervisor shall guide the candidates on their choice after having reviewed proposed topics, the mindset and work culture, provided the work is of innovative in nature, affordable and with future prospective. If not satisfied with the proposed topic/due to lack of infrastructure/beyond scope and practicality, supervisor herself shall suggest the field/topic for work. Hard copy of proposed title with objectives in the prescribed format to be submitted to CoE’s Office through Dean, Autonomous in the last week of June
6. Parent’s undertaking/willingness may be obtained in writing by inviting the parents for department level meeting after explaining its importance, guidelines, safety precautions related to outdoor project commitments etc.
7. Project period – June to September. Last date for the submission of dissertation is 15th October
8. Project Progress Review has to be conducted in 5th July, 5th August and 5thSeptember.Report Card for individual candidates shall be maintained at the department for audit at any time. (Proforma)
9. If a candidate fails to submit the dissertationon or before the specified date, she may submit thesame on or before 15th November by paying prescribed late fee.
10. The evaluation of dissertation will be as per the University/Autonomous norms

The assessment of Project component during the Course and in the End-semester examinations shall be carried out as follows:

CIA (Max: 25 Marks)				End – Semester Examination(Max.: 75 marks)				
Marks for Reviews (Average of the best two of the three compulsory Reviews)(Max.: 25 marks)				Marks for ThesisEvaluation (Max.: 25 marks)		Marks for Viva-VoceExam. (wit the Deptl.Faculty Member / Course students) (Max.: 50 marks)		Total (Max.)
ReviewI (Max.)	ReviewII (Max.)	ReviewIII (Max.)	Averageof the best two (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	Project Supervisor (Max.)	External (from outside the Institution) (Max.)	
25	25	25	25*	12.5	12.5	25	25	75*

* The marks secured may be rounded off to its nearest integer.

11. PG and M.Phil., students should carry out the project individually. UG students may undertake group projects with a maximum of three students in a group. The group may be of interdisciplinary nature combining students from two to three departments with the concern of the respective guides. An undertaking, in this regard, has to be submitted by the group of students with the endorsement by the guides.

12. LATEX procedure shall be followed for Mathematics projects.

13. **GUIDELINES ON THESIS (WITH STATIONERY ECONOMY MEASURES):**

a. Number of Pages (inclusiveof prefix and suffix):

i) V semester Project Maximum 40 pages;

ii) VI semester Project Maximum 60 pages,

iii) PG Projects Maximum 80 pages;Iv) M.Phil., maximum 100 pages.

b. Size of the paper A4; Font Times New Roman; Title 14 Capitals/Bold; Subtitle 12Capitals/Bold; Running matter 11.

c. Left and Right margin 1 and half inch; Top and bottom margin 1 inch

d. Line space 1.5

e. Table and Figures shall be in separate sheets (without page number). More than 1 table orfigure or plate is permitted in a page. Table number followed by the title should be on the topof the respective table. Similarly Figure Number followed by title be at the bottom of the respective figures. Regarding Plates ie photographs only original photographs (printed in photo sheet) of the work carried out and scientifically relevant to be included. The size the photographs should be reduced and neatly arranged in a page with appropriate title or sub title. Plate Number followed by the title be at the bottom of the photographs concerned.

f. Number of copies:

I. Copy 1 – Student copy – Neatly typed on one side with good binding to be submitted (to be returned immediately after examination)

II. Copy 2 – Department copy - Neatly typed on both sides of the paper with stapler pin binding –Copies of all students have to be bound in volumes of 1 or 2 and kept in the department for reference.

III. Copy 3 - Autonomous Office copy – Projects of all students as one CD/DVD & Hard copy of the abstract/extended abstract as OHP bound booklet.

IV. For PG & MPhil., (Candidate copy - Hard bound (one side print), Autonomy (CD), Guide copy (CD), Department (CD containing all projects of the class), Central library (CD containing all projects of the class) & Hard copy of the abstract/extended abstract as OHP bound booklet.

g. Uniform structure/composition of the thesis:

Uniformity in Prefix contents for all disciplines		
1	Wrapper page	
2	Wrapper page copy	
3	Contents	
4	Acknowledgement by the candidate	
5	Declaration by the Candidate with candidate’s Photo attested by HoD	
6	Certificate by the supervisor, countersigned by HoD	
7	Evaluation Examiners Page	
Running matter structure Arts, Languages, Humanities		Running matter structure Science
1	Abstract/Extended Abstract	1 Synopsis
2	Introduction	2 System Environment
3	Review of Literature	3 System Analysis
4	Profile of The Study	4 System Design
5	Methodology & Data collection	5 System Development
6	Analysis and Interpretation	6 Future Enhancement
7	Findings, Suggestions and Conclusion	7 Conclusion
8	Bibliography(Uniform format)	8 Bibliography (Uniform format)
Uniformity in Suffix – contents		
Publications – Xerox of Abstracts/extended abstracts/Full papers		

h.

i. Bibliography: Arts & Science.

vi. Research article:

Latha, P., Dhanabackialakshmi, R., Kumar, P.S. and Karuthapandian, S. 2016. Synergistic effects of trouble free and 100% recoverable CeO₂/Nylon nanocomposite thin film for the photocatalytic degradation of organic contaminants. Separation and Purification Technology, 168(2): 124–133

vii. Conference / Seminar / Symposium papers

Peng, J., Zhang, X., Lei, Z., Zhang, B., Zhang, W. and Li,Q. 2009. Comparison of several cloud computing platforms. In: Proceedings of Second International Symposium on Information Science and Engineering, 23 – 27

viii. Books

Versteeg, H.K. and Malalasekera, W. 2007.An Introduction to Computational FluidDynamics. II Edn. Pearson Education Ltd., New York, pp. 517

ix. Book Chapters

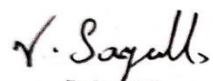
Wade, S.E. 1981. Statistical designs for survey research. In: Stempel, G.H. and Westley, B.H. (Eds.). Research methods in mass communication.Printice Hall IndiaLearning India Ltd., New Delhi, pp. 167

x. Web reference

National Institute of Mental Health.2018, July.Anxiety disorders. U.S. Department of Health and Human Services, National Institutes of Health. <https://www.nimh.nih.gov/health/topics/anxiety-disorders/index.shtml>

(Author to be included first, date to be included before month, if available)


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SARADA COLLEGE FOR WOMEN, TIRUNELVELI-627011DEPARTMENT OF COMPUTER APPLICATIONS
Certificate Programme 2020-2022 CERTIFICATE in Social Networking

1. COURSE TITLE
CERTIFICATE IN SOCIAL NETWORKING

2. OBJECTIVE
- 1. The main objective of the Social Networking Site is to manage the details of Users,Videos, Shares, Photos, and Friends.
 - 2. The students can manages all the information about Users, Posts, Friends, and Users.
 - 3. The students can have the concepts totally built at administrative end and thus only theadministrator is guaranteed the access.
 - 4. The students learn a Networking in modern social media.

3. OUTCOME
- 1. Positivity of social networking.
 - 2. Know about the legislations of social networking.
 - 3. Know about the connectivity of the people.

4. SYLLABUS

Unit	Detailed Syllabus
1	Social Networking Basics: Understand what social networking is - Know the risks and benefits of social networking - Understand what an online identity is.
2	Social Network Profile: Identify different social networking sites - Know how to create a social network profile - Know how to add an image to a social network profile - Understand the privacy options within a social network profile - Know how to report misconduct / abuse within a social network - Know how to deactivate a social network profile - Know how to set profile permissions and privacy.
3	Connecting to people: Know how to search for people within a social network - Know how to connect to people within a social network - Know how to accept and decline connection requests within a social network - Know how to send and respond to messages within a social network - Know how to post a comment within a social network.
4	Groups, Events and sharing: Understand what groups are within a social network - Know how to join groups within a social network - Know how to join an event within a social network - Know how to upload digital photographs / videos within a social network - Know how to tag photographs within a social network
5	Social Networking Guidelines and Legislations: Understand about the behavioural rules when using social networks - Understand what illegal content is - Understand that there are minimum age requirements for social networking sites - Understand how copyright legislation applies to social networking - Understand how data protection legislation applies to social networking.

5. REFERENCE BOOKS:

S. No	Title of the Book	Author's	Year(Edn)	Publisher/s
1	Networks crowds and markets Reasoning about a highly connected world	David Easley and John Kleinberg	2010 (1)	Cambridge University press,(US)
2	Social media mining	Reza zafarani,Mohammad Ali abash,Huan Liu	2014 (1)	Cambridge University press,(US)

6. ELIGIBILITY
Minimum +2(Open to all on this option)

7. DURATION OF THIS COURSE
40 Hours (1 Semester)

8. EXAMINATION EVALUATION COMPONENTS

Internal (40)		External (60)
Average of Two test	- 20 Marks	Section A – True or False (1) – 10 Marks
Assignment 1	- 5 Marks	Section B – 5 out of 8 (4) – 20 Marks
Quiz 1	- 5 Marks	Section C – 3 out of 5 (10) – 30 Marks
Field Visit/Case Study Report/Record - 10 Marks		


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SRI SARADA COLLEGE FOR WOMEN, TIRUNELVELI-627011DEPARTMENT OF COMPUTER APPLICATIONS
Certificate Programme 2020-2022CERTIFICATE in Virtual Reality

1. COURSE TITLE
CERTIFICATE IN VIRTUAL REALITY

2. OBJECTIVE
- 1. To create an adaptive 3D the virtual environment that meets the needs of trainee interpretersand those who need to learn about how to work with interpreters.
 - 2. To develop a range of interpreting scenarios (e.g. a business meeting room, a court room, a tourist office, a community centre) that can be run in different modes (‘interpreting practice’, ‘exploration’ and ‘live’).
 - 3. To develop multilingual content for use in the interpreting scenarios of the virtual environment
 - 4. To create pedagogical activities for interpreting students and users of interpreting services (e.g.interpreting skills, awareness-raising activities).

3. OUTCOME
- 1. Know about the Virtual Reality Environment Experiencing
 - 2. Learn in advanced technology aapplications
 - 3. To test and evaluate the virtual environment and the pedagogic content
4. SYLLABUS

Unit	Detailed Syllabus
1	Introduction: Course mechanics - Goals and VR definitions - Historical perspective –Birds eye view (general) - Birds-eye view (general)- Birds-eye view (hardware) - Birds-eye view (software) - Birds-eye view (sensation and perception)
2	Geometry of virtual words: Geometric modeling - Transforming models - Matrix algebra and 2D rotations - 3D rotations and yaw, pitch, and roll - 3D rotations and yaw, pitch, and roll - Axis-angle representations - Quaternions - Converting and multiplying rotations - Converting and multiplying rotations - Homogeneous transforms - The chain of viewing transforms - Eye transforms - Eye transform - Canonical view transform -Viewport transform - Viewport transform.
3	Light and Optics: Three interpretations of light - Refraction - Simple lenses - Diopters - Imaging properties of lenses - Imaging properties of lenses - Lens aberrations - Optical system of eyes.
4	Tracking systems: Orientation tracking - Tilt drift correction - Yaw drift correction - Tracking with a camera - Perspective n-point problem - Filtering - Lighthouse approach.
5	Visual Rendering: Overview - Visual Rendering-overview- Shading models - Rasterization - Pixel shading - VR-specific problems - Distortion shading - Post-rendering image warp

7. REFERENCE BOOKS:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Foundations of sensation and perception	George mather	2016 (2)	Psychology press,New Delhi
2	Fundamentals of Computer Graphics	Steve MarchschnerPeter Shirley	2016 (3)	CRC press,New Delhi

6. ELIGIBILITY
Minimum +2(Open to all on this option)

7. DURATION OF THIS COURSE
40 Hours (1 Semester)

8. EXAMINATION EVALUATION COMPONENTS

Internal (40)		External (60)
Average of Two test	- 20 Marks	Section A – True or False (1) – 10 Marks
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SRI SARADA COLLEGE FOR WOMEN,TIRUNELVELI-627011DEPARTMENT OF COMPUTER APPLICATIONS
Diploma Programme 2020-2022 DIPLOMA in Human Computer Interaction

1. COURSE TITLE
DIPLOMA IN HUMAN COMPUTER INTERACTION

2. OBJECTIVE
1. They will understand the language and the constraints that specialists in other contributing disciplines work under.
 2. They will learn about mobile applications.
 3. They will gain an understanding about design architecture.
 4. They will get trained to working with the application environment.

3. OUTCOME
1. The principles and characteristics of human-computer interaction, such as direct manipulation, usability affordances, and interaction design heuristics.
 2. The workflow for designing and evaluating user-centered designs, from needfinding to prototyping to evaluation.
 3. The current state of research and development in human-computer interaction, such as augmented reality, wearable devices, and robotics.

4. SYLLABUS

Unit	Detailed Syllabus
1	Foundations Of HCI: The Human: I/O channels – Memory – Reasoning and problem solving; The computer: Devices – Memory – processing and networks; Interaction: Models – frameworks – Ergonomics – styles – elements – interactivity- Paradigms.
2	Design & Software Process: Interactive Design basics – process – scenarios – navigation – screen design – Iteration and prototyping. HCI in software process – software life cycle – usability engineering – Prototyping in practice – design rationale. Design rules – principles, standards, guidelines, rules. Evaluation Techniques – Universal Design.
3	Models And Theories: Cognitive models –Socio-Organizational issues and stake holder requirements –Communication and collaboration models-Hypertext, Multimedia and WWW.
4	Mobile HCI: Mobile Ecosystem: Platforms, Application frameworks- Types of Mobile Applications: Widgets, Applications, Games- Mobile Information Architecture, Mobile 2.0, Mobile Design: Elements of Mobile Design, Tools.
5	Web Interface Design: Designing Web Interfaces – Drag & Drop, Direct Selection, Contextual Tools, Overlays, Inlays and Virtual Pages, Process Flow.

5. REFERENCE BOOKS:

S.No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Handbook of Human Computer Interaction	Martin Helander	2014	Elsevier science publisher,(US)
2	Human Computer Interaction Fundamental and Practice	Gerard Jounghyunkim	2015	CRC Press,NewDelhi

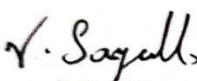
6. ELIGIBILITY
Minimum +2(Open to all on this option)

7. DURATION OF THIS COURSE
40 Hours (1 Year)

8. EXAMINATION EVALUATION COMPONENTS

Internal (40)		External (60)
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SRI SARADA COLLEGE FOR WOMEN,TIRUNELVELI-627011DEPARTMENT OF COMPUTER APPLICATIONS
Diploma Programme 2020-2022 DIPLOMA in Modern Application Development

1. COURSE TITLE

DIPLOMA IN MODERN APPLICATION DEVELOPMENT

2. OBJECTIVE

- 1. This course is designed for students who want to learning about mobile devices types.
- 2. They will learn about modern mobile operating systems.
- 3. They will gain an understanding about systems for mobile application distribution.
- 4. They will get trained to prepare for mobile application development.

3. OUTCOME

- 1. To understand the basic knowledge of mobile technologies.
- 2. Know mobile devices and mobile platform
- 3. Can familiar with wireless communication standards and data transmission standards.

4. SYLLABUS

Unit	Detailed Syllabus
1	Introduction: What is Android, Android versions and its feature set The various Android devices on the market , The Android Market application store , Android Development Environment - System Requirements, Android SDK, Installing Java, and ADT bundle - Eclipse Integrated Development Environment (IDE), Creating Android Virtual Devices (AVDs)
2	Android Architecture Overview and Creating an Example Android Application: The Android Software Stack, The Linux Kernel, Android Runtime - Dalvik Virtual Machine, Android Runtime – Core Libraries, Dalvik VM Specific Libraries, Java Interoperability Libraries, Android Libraries, Application Framework, Creating a New Android Project ,Defining the Project Name and SDK Settings, Project Configuration Settings, Configuring the Launcher Icon, Creating an Activity, Running the Application in the AVD, Stopping a Running Application, Modifying the Example Application, Reviewing the Layout and Resource Files,
3	Android Software Development Platform: Understanding Java SE and the Dalvik Virtual Machine , The Directory Structure of an Android Project , Common Default Resources Folders , The Values Folder , Leveraging Android XML, Screen Sizes , Launching Your Application: The AndroidManifest.xml File ,Creating Your First Android Application
4	Android Framework Overview : Android Application Components, Android Activities: Defining the UI, Android Services: Processing in the Background, Broadcast Receivers: Announcements and Notifications Content Providers: Data Management, Android Intent Objects: Messaging for Components Android Manifest XML: Declaring Your Components
5	Understanding Android Views, View Groups and Layouts: Designing for Different Android Devices, Views and View Groups, Android Layout Managers, The View Hierarchy, Designing an Android User Interface using the Graphical Layout Tool- Graphical User Interface Screen with views Displaying Text with Text View, Retrieving Data from Users, Using Buttons, Check Boxes and Radio Groups, Getting Dates and Times from Users, Using Indicators to Display Data to Users, Adjusting Progress with Seek Bar, Working with Menus using views

5. REFERENCE BOOKS:

S. No	Title of the Book	Author	Year(Edn)	Publisher/s
1	Mobile Computing	Devi Kamal	2012(2)	Oxford University Press
2	Android in Practice	Charlie Collins, Michale Galpin, Matthias Kaeppler	2012(3)	Manning Publications

6. ELIGIBILITY

Minimum +2(Open to all on this option)

7. DURATION OF THIS COURSE

40 Hours (1 Year)

8. EXAMINATION EVALUATION COMPONENTS

Internal (40)		External (60)
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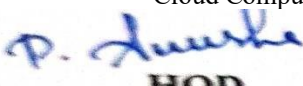
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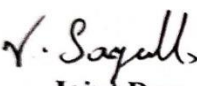
Degree:M.Phil, Subject: Computer ScienceProgramme structure (wef 2019-2020)

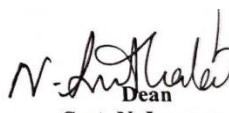
Sem	Category	Course code	Course title	Hours/week			Credits
				L	P	T	
I	Core -1	19MCSC11	Research and Teaching Methodology	4	0	4	4
I	Core – 1	19MCSC12	Recent Research Trends in Computing	4	0	4	4
I	Elective – 1	19MCSE11	Elective - I	4	0	4	4
II	Thesis		Dissertation	0	12	12	0
Total				12	12	24	12

List of Electives Offered:

1. Internet of Things (IoT) - 19MCSE11
2. Advanced Digital Image Processing –19MCSE12
3. Data Mining and Warehousing - 19MCSE13
4. Machine Learning Techniques - 19MCSE14
5. Cloud Computing - 19MCSE15


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T – BOS - SRI SARADA COLLEGE FOR WOMEN(AUTONOMOUS)TIRUNELVELI- 627011SEMESTER I

Objectives	Programme: M.Phil	Subject: Computer Science	
	Course code:19MCSC11	Course Title: Research And Teaching Methodology	
	Category: Core	To understand a general definition of research design.	Hours: 4
1.	To identify the overall process of designing a research study from its inception to its report.		
2.	To know the primary characteristics of quantitative research and qualitative research.Outcomes		
3.	Explain the importance of the research methodology		
1.	Select and apply different research approaches and methodologies		
2.	Develop data collection instrument according to the underlying theoretical framework.Analyse quantitative data and qualitative data using software packages		
3.			

Units	Detailed Syllabus	Hours
1	Research Methodology: introduction -Meaning of Research -objectives of Research –Motivation in Research –Types of Research–Research Approaches –Significance of Research –Research methods versus methodology.	12
2	Research and Scientific Method –Importance of knowing how Research is done –Research process –Criteria for good Research –Problems encountered by Researchers in India. Journal Reading Techniques -Defining the Research problem –What is the Research Problem –Selecting the Problem –Necessity of Defining the problem –Technique involved in Defining the Problem –An illustration –Conclusion.Research Design–Need for Research Design –Features of good design –Important concepts relating to Research Design –Different Research Design –Basic principles of Experimental.	12
3	Methods of Data Collection –Collection of primary data –Collection of data through questionnaires –Schedules –Differentiation between questionnaires and schedules –Other methods of data collection –Collection of secondary data –Selection of appropriate method for data collection– Guidelines for constructing questionnaire/Schedule–Guidelines for successful Interviewing– Difference between survey and experiment –Data Collection using Journals.	12
4	Significance of Report Writing –Different steps in writing Report –Layout of the Research Report –Types of Reports–Oral presentation –Mechanics of writing a Research Report –Precautions for writing a Research Reports– Conclusions.	12
5	Pedagogical Methods in Higher Learning -Historical Perspectives –Objectives and role of Higher Education –Learning and Learning Hierarchy –Information processing –Learning Events and Outcomes –Motivation. Education Evaluation: A Conceptual Framework –Methods of Evaluation –Self Evaluation and Student Evaluation in Higher Education –Question Banking –Diagnostic Testing and Remedial Teaching.	12

Reference Books

S.No	Title of the Book	Author	Edition, Year	Publication
1.	Research Methodology–Methods andTechniques	C.R. Kothari	Second Edition 2003	New Age International (P) Limited, New Delhi
2.	Qualitative Research in IS: Issues & Trends	Eileen M.Trauth	ISBN: 1930708-06-08	IDEA Group Publishing, New Delhi
3.	Introducing Research Methodology: A Beginner's Guide to Doing a Research Project	Uwe Flick	Second Edition 2015	SAGE Publications Ltd, New Delhi
4.	Research Design: Qualitative, Quantitativeand Mixed Methods Approaches	John W.Creswell	Fourth Edition	SAGE Publications Ltd, New Delhi
5.	The Essential Guide to Doing Your Research Project	Zina O'Leary	SecondEdition,	SAGE Publications Ltd,


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T – BOS - SRI SARADA COLLEGE FOR WOMEN(AUTONOMOUS) TIRUNELVELI – 627011SEMESTER I

Programme: M.Phil	Subject: Computer Science	
Course code:19MCSC12	Course Title: Recent Research Topics In Computing	
Category: Core – 2	Credits: 4	Hours: 4

Objectives

1.
- To provides a basic exposition to the goals and methods of Artificial Intelligence.
2.
- To understand the fundamental of Robotics.
3.
- To know the best understanding of network security.
4.
- To get basic ideas in the recent research field.

Outcomes

1.
- Provides a basic exposition to the goals and methods of Soft Computing and Cloud Computing
2.
- Explains a brief knowledge about mobile computing
3.
- Explain principles of Network Security

Units	Detailed Syllabus	Hours
1	Robotics and Artificial Intelligence: AI problem – AI technique – level of the model – defining the problem – production systems – production system characteristics – Heuristic search techniques. Robot anatomy-Definition, law of robotics, History and Terminology of Robotics-Accuracy and repeatability of Robotics-Simple problems Specifications of Robot-Speed of Robot-Robot joints and links-Robot classifications-Architecture of robotic systems-Robot Drive systems Hydraulic, Pneumatic and Electric system.	12
2	Introduction to Data Mining: Functionalities – Classification of Data Mining Systems – Data Warehouse and OLAP Technology for Data Mining – Data models – Warehousing Architecture, Implementation – Data Cube Technology Unit – II Data Processing: Cleaning: Integration and Transformation – Reduction – Discretization and Concept Hierarchy Generation – Data Mining Primitives, Languages and System Architectures – Query Language.	12
3	Mobile and pervasive computing: Mobile computing environment—functions-architecture -content architecture -CC/PP exchange protocol, context manager. Mobility QOS. Security in mobile computing. Pervasive Computing- Principles, Characteristics- interaction transparency, context aware, automated experience capture. Architecture for pervasive computing- Pervasive devices embedded controls.- smart sensors and actuators -Context communication and access services.	12
4	Big Data Analytics and Management: Introduction to Big Data: Definition – Characteristics – Importance of Big Data – Understanding the waves of managing data – Architecture of Big Data. Analytics and Big Data: Using Big Data to get results – Basic Analytics – Advance Analytics – Operationalized Analytic – Modifying Business Intelligence products to handle Big Data. Analytical Algorithms.	12
5	Network Security: Cryptography - Introduction -Submission Ciphers – Transposition Ciphers - Onetime pads – Cryptographic Principles – Symmetric Key Algorithms: DES - AES – Cipher Modes - Cryptanalysis –Public Key Algorithms – Digital Signatures: Symmetric Key Signatures – Public Key Signatures - Message Digests - The Birth Day Attack – Management of public keys: Certificates – X 509 - Public Key Infrastructure.	12

Reference Books

S.No	Title of the Book	Author	Edition, Year	Publication
1	Robotics Technology and flexible automation	S.R. Deb	First Edition	Robotics Technology and flexible automation, New Delhi
2	Artificial Intelligence	Elaine Rich and Kevin Knight	Second Edition	Tata Mc-Graw Hill publications,
3	Data Mining: Concepts and Techniques	Jiawei Han and MichelineKamber	First Edition	Morgan Kaufman Publishers, New Delhi
4	Context-Aware Computing Pervasive	SengLoke	First Edition	AuerbachPub.,New Delhi
5.	Pervasive Computing	UweHansmannet	First Edition	Springer, New Delhi


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T – BOS - SRI SARADA COLLEGE FOR WOMEN(AUTONOMOUS) TIRUNELVELI – 627011SEMESTER I

Programme: M.Phil	Subject: Computer Science	
Course code:19MCSE11	Course Title: Internet of Things	
Category: Elective	Credits:4	Hours: 4

Objectives

1.
- To understand the fundamentals of Internet of Things
2.
- To learn about the basics of IOT protocols
3.
- To build a small low cost embedded system

Outcomes

1.
- Explains the basic components of IOT.
2.
- Able to develop web services to access/control IoT devices.
3.
- Design a portable IoT using Raspberry Pi
4.
- Deploy an IoT application and connect to the cloud.
5.
- Analyze applications of IoT in real time scenario

Units	Detailed Syllabus	Hours
1	OVERVIEW-IoT-An Architectural Overview– Building an architecture, Main design principles and needed capabilities, An IoT architecture outline, standards considerations. M2M and IoT Technology Fundamentals- Devices and gateways, Local and wide area networking, Data management, Business processes in IoT, Everything as a Service(XaaS), M2M and IoT Analytics, Knowledge Management	12
2	REFERENCE ARCHITECTURE IoT Architecture-State of the Art – Introduction, State of the art, Reference Model and architecture, IoT reference Model – IoT. Reference Architecture- Introduction, Functional View, Information View, Deployment and Operational View, Other Relevant architectural views. Real-World Design Constraints- Introduction, Technical Design constraints-hardware is popular again, Data representation and visualization, Interaction and remote control.	12
3	IOT DATA LINK LAYER & NETWORK LAYER PROTOCOLS (12 hours) PHY/MAC Layer(3GPP MTC, IEEE 802.11, IEEE 802.15), WirelessHART,Z-Wave,Bluetooth Low Energy, Zigbee Smart Energy, DASH7 - Network Layer-IPv4, IPv6, 6LoWPAN,6TiSCH,ND, DHCP, ICMP, RPL, CORPL, CARP	12
4	UNIT IV – TRANSPORT & SESSION LAYER PROTOCOLS - Transport Layer (TCP, MPTCP, UDP, DCCP, SCTP)-(TLS, DTLS) – Session Layer-HTTP, CoAP, XMPP, AMQP, MQTT. SERVICE LAYER PROTOCOLS & SECURITY - Service Layer -oneM2M, ETSI M2M, OMA, BBF – Security in IoT Protocols – MAC 802.15.4 , 6LoWPAN, RPL, Application Layer	12
5	UNIT V – CASE STUDIES - Real world design constraints - Applications - Asset management, Industrial automation, smart grid, Commercial building automation, Smart cities - participatory sensing - Data Analytics for IoT– Software & Management Tools for IoT Cloud Storage Models & Communication APIs - Cloud for IoT - Amazon Web Services for IoT.	12

Reference Books

S. No.	Title of the Book	Author	Edition, Year	Publication
1	Introduction to a New Age of Intelligence	JanHoller,Vlasios Tsiatsis, Mulligan, Stefan Avesand	First Edition, 2014.	Academic Press, West Bengal
2.	Internet of Things (A Hands-onApproach)	Vijay Madisetu and ArshdeepBahga	First Edition,2014.	VPI, Visakapatnam
3.	Internet of Things – A hands-on approach	ArshdeepBahga, Vijay Madisett	First Edition 2015	Universities Press, Hyderabad
4.	Architecting the Internet of Things	Dieter Uckelmann, Mark Harrison	First Edition 2011.	Springer, New Delhi
5.	Building the Internet of Things with IPv6 and MIPv6: The Evolving World of	Daniel Minoli	ISBN: 978-1-118- 47347-4	Wiley Publications, New Delhi


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T – BOS - SRI SARADA COLLEGE FOR WOMEN(AUTONOMOUS) TIRUNELVELI – 627011SEMESTER I

Programme: M.Phil.	Subject : Computer Science	
Course code:19MCSE12	Course Title: Advanced Digital Image Processing	
Category: Elective - 1	Credits: 4	Hours: 4

Objectives

1.
- To apply techniques for image segmentation, filtering and compression.
2.
- Able to process and analyze image data.
3.
- Able to implement a complete image-processing package using standard concepts.

Outcomes

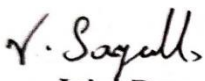
1.
- Able to apply image processing techniques in both the spatial and frequency domains.
2.
- Design image analysis techniques in the form of image segmentation and to evaluate themethodologies for segmentation.
3.
- Familiarization of MATLAB Tool for Image Processing Techniques.

Units	Detailed Syllabus	Hours
1	Spatial Domain Processing : Introduction to image processing – imaging modalities – image file formats – image sensing and acquisition – image sampling and quantization – noise models – spatial filtering operations – histograms – smoothing filters – sharpening filters – fuzzy techniques for spatial filtering – spatial filters for noise removal.	12
2	Frequency Domain Processing : Frequency domain – Review of Fourier Transform (FT), Discrete Fourier Transform (DFT), and Fast Fourier Transform (FFT) – filtering in frequency domain – image smoothing – image sharpening – selective filtering – frequency domain noise filters – wavelets – Haar Transform – multiresolution expansions – wavelet transforms – wavelets based image processing.	12
3	Segmentation and Edge Detection : Thresholding techniques – region growing methods – region splitting and merging – adaptive thresholding – threshold selection – global valley – histogram concavity – edge detection – template matching – gradient operators – circular operators – differential edge operators – hysteresis thresholding – Canny operator – Laplacian operator – active contours – object segmentation	12
4	Interest Points ,Morphology and Texture : Corner and interest point detection – template matching – second order derivatives – median filter based detection – Harris interest point operator – corner orientation – local invariant feature detectors and descriptors – morphology – dilation and erosion – morphological operators – grayscale morphology – noise and morphology – texture – texture analysis – co-occurrence matrices – Laws' texture energy approach – Ade's eigen filter approach	12
5	Color Images and Image Compression : Color models – pseudo colors – full-color imageprocessing – color transformations – smoothing and sharpening of color images – image segmentation based on color – noise in color images. Image Compression – redundancy in images – coding redundancy – irrelevant information in images – image compression models – basic compression methods – digital image watermarking.	12

Reference Books

S.No	Title of the Book	Author	Edition, Year	Publication
1	Computer & Machine Vision	E. R. Davies	Fourth Edition	Academic Press , West Bengal
2	Digital Image Processing: An Algorithmic Introduction using Java	W. Burger and M.Burge	First Edition 2008	Springer, New Delhi
3	The Image Processing Handbook	John C. Russ	Sixth Edition	CRC Press, New Delhi
4	Digital Image Processing	R. C. Gonzalez and R. E. Woods	Third Edition	Pearson, Bangalore
5	Mastering OpenCV with Practical Computer Vision Projects	D. L. Baggio et al	First Edition	Packt Publishing, Mumbai


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T – BOS - SRI SARADA COLLEGE FOR WOMEN(AUTONOMOUS) TIRUNELVELI – 627011SEMESTER I

Programme: M.Phil.	Subject : Computer Science	
Course Code: 19MCSE13	Course Title: Data Mining And Warehousing	
Category: Elective	Credits: 4	Hours: 4

Objectives

1.

To understand data warehouse concepts, architecture, business analysis and tools
2.

To understand data pre-processing and data visualization techniques
3.

To study algorithms for finding hidden and interesting patterns in data
1.

Interpret the contribution of data warehousing and data mining to the decision-support level of organizations
2.

Evaluate different models used for OLAP and data pre-processing
3.

Categorize and carefully differentiate between situations for applying different data-mining techniques: frequent pattern mining, association, correlation, classification, prediction, and cluster and outlier analysis

Units	Detailed Syllabus	Hours
1	Basic data mining tasks – data mining versus knowledge discovery in databases–data mining issues – data mining metrics – social implications of data mining – data mining from a database perspective. Data mining techniques: Introduction – a statistical perspective on data mining – similarity measures – decision trees – neural networks – genetic algorithms.	12
2	Classification: Introduction – Statistical – based algorithms - distance – based algorithms – decision tree - based algorithms - Classification by Back Propagation – Support Vector Machines — Lazy Learners -neural network – based algorithms–rule - based algorithms– combining techniques.	12
3	Clustering: Introduction – Similarity and Distance Measures –Outliers– Hierarchical Algorithms - Partitional Algorithms. Association rules: Introduction - large item sets - basic algorithms – parallel & distributed algorithms – comparing approaches- incremental rules – advanced association rules techniques – measuring the quality of rules.	12
4	Data warehousing: An introduction - characteristics of a data warehouse – data mart – other aspects of data mart. Online analytical processing: introduction - OLTP & OLAP systems – data modelling –star schema for multidimensional view –data modelling – multifact star schema or snow flake schema – OLAP TOOLS – State of the market – OLAP TOOLS and the internet	12
5	Developing a data WAREHOUSE: why and how to build a data warehouse –data warehouse architectural strategies and organization issues - design consideration – data content – metadata distribution of data – tools for data warehousing – performance considerations – crucial decisions in designing a data warehouse.	12

Reference Books

S. No	Title of the Book	Author	Edition, Year	Publication
1	Data mining introductory and advanced topics	Margaret H.Dunham	First Edition,2003	Pearson education ,NewDelhi
2	Data warehousing concepts,techniques, products and an applications	C.S.R. Prabhu	Third Edition,2010	PHI Publications, New Delhi
3	Techniques	ArunK.Pujari	First Edition,2003	Universities Press (India) Pvt. Ltd, Hyderabad.
4	Data warehousing, data mining & OLAP	Alex Berson, Stephen J. Smith	First Edition,2001	TMCH, New


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SEMESTER I

Programme: : M.Phil	Subject: Computer Science	
Course code: 19MCSE14	Course Title: Machine Learning	
Category: Elective	Credits: 4	Hours: 4

Objectives

1.

To understand the concepts of machine learning
2.

To understand the clustering techniques and their utilization in machine learning
3.

To study the neural network systems for machine learning
1.

Describe the various machine learning concepts and models
2.

Familiarization of Neural Networks Applications
3.

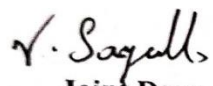
Able to compare and analyze the performance of various machine learning algorithms

Units	Detailed Syllabus	Hours
1	Introduction: Machine learning-What and why? - Types of Machine Learning - Supervised Learning - Unsupervised Learning – reinforcement - The Curse of dimensionality - Over fitting and linear regression - Bias and Variance - Learning Curve - Classification - Error and noise - Parametric vs. non-parametric models - Linear model.	12
2	Clustering Approaches: Measuring (dis)similarity - Evaluating the output of clustering method - Spectral clustering - Graph Laplacian - Normalized graph Laplacian - Hierarchical clustering - Agglomerative clustering - Divisive clustering - Choosing the number of clusters - Bayesian hierarchical clustering - Clustering datapoints and features - Bi-clustering - Multi-view clustering - K-Means clustering - K-meloids clustering.	12
3	Neural Networks : Biological motivation for Neural Network - Neural network Representation - Perceptrons - Feed forward networks - Multilayer Networks and Back Propagation Algorithms - Convergence and local minima and Hidden layer representation in back propagation - Recurrent networks - Applications of neural networks - Face recognition using neural networks.	12
4	Linear Models : Linear Regression - Logistic Regression - Maximum Likelihood estimation (least squares) - Robust linear regression - Ridge Regression - Principal Component Analysis - Bayesian Classifier - Support Vector Machines.	12
5	Tree Learning and Reinforcement Learning : Directed and Undirected trees - Decision tree representation - Basic decision tree learning algorithm - Passive reinforcement learning – temporal-difference learning –active reinforcement learning – applications in game playing – applications in robot control.	12

Reference Books:

S.No.	Title of the Book	Author	Edition, Year	Publication
1	Elements of Statistical Learning	Hastie, Tibshirani,Friedman	Second Edition,2009	Springer, New Delhi
2	Machine Learning –An Algorithmic Perspective	Stephen Marsland	Second Edition,2009	CRC Press, New Delhi
3	Christopher Bishop	Pattern Recognition and Machine Learning	First Edition,2006	Springer, New Delhi
4	Richard Duda , PeterHart , David Stork	Pattern Classification	Second Edition,2007	Wiley, New Delhi
5	Russell	Artificial Intelligence A Modern Approach	Third Edition,2015	Pearson, Bangalore


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SEMESTER I

Programme:M.Phil	Subject: Computer Science	
Course code:19MCSE15	Course Title:Cloud Computing	
Category: Elective	Credits: 4	Hours: 4

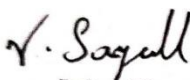
- Objectives
- To understand the basic concepts of Cloud computing, the infrastructure and the security aspects.
 - To impart knowledge on the concepts of cloud computing, monitoring, management and applications of clouds.
 - To understand the basic concepts, tasks, methods and techniques in cloud computing.
- Outcomes
- Understanding the key dimensions of the challenges of cloud computing
 - Assessment of the economics, financial and technological implications for selecting cloud computing for own organizations
 - Assessment of own organizations needs for capacity building and training in cloud computing related IT areas.

Units	Detailed Syllabus	Hours
1	Introduction to Cloud Computing: Roots of Cloud Computing - Layers and Types of Cloud – Features of a cloud-Infrastructure Management-Cloud Services-Challenges and Risks. Migrating into a Cloud: Introduction - Broad Approaches – Seven Step Model. Integration as a Service-Integration Methodologies - SaaS.	12
2	Infrastructure as a Service: Virtual Machines-Layered Architecture-Life Cycle-VM Provisioning Process- Provisioning and Migration Services. Management of Virtual Machines Infrastructure - Scheduling Techniques. Cluster as a service-RVWS Design-Logical Design. Cloud Storage - Data Security in cloud Storage- Technologies.Cloud Infrastructure - FOSS Cloud Software Environments - Eucalyptus, Open nebula, OpenStack – OpenStack Architecture – Compute, Object Storage, Image Service, Identity, Dashboard, Networking, Block Storage, Metering, Basic Cloud Orchestration and Service Definition.	12
3	Platform and Software as a Service: Integration of Public and Private Cloud- Techniques and tools- framework architecture resource provisioning services - Hybrid Cloud. Cloud based solutions for business Applications- Dynamic ICT services-Importance of quality and Security in clouds-Dynamic Data center-case studies. Workflow Engine in the cloud – Architecture - Utilization. Scientific Applications for cloud – Issues – Classification – SAGA – Map Reduce Implementation.	12
4	Monitoring and Management: An Architecture for federated Cloud Computing – Use case –Principles – Model - Security Considerations. SLA Management - Traditional Approaches to SLO -Types of SLA - Lifecycle of SLA - Automated Policy. Performance Prediction of HPC-Grid and Cloud - HPC Performance related issues.	12
5	Applications: Best Practices in Architecting cloud applications in the AWS cloud - Massively multiplayer online Game hosting on cloud Resources - Building content delivery Networks using cloudsResource cloud Mashups.Security in the Cloud: Cloud Security Challenges – Software-as-a-Service Security – Security Governance – Risk Management – Security Monitoring – Security Architecture Design – Data Security – Application Security – Virtual Machine Security – Qubes – Desktop security through Virtualization Book	12

Reference Books

S.No	Title of the Book	Author	Edition, Year	Publication
1.	CLOUD COMPUTING Principles and Paradigms	RajkumarBuyya, James Broberg	First Edition	John Wiley & Sons, New Delhi
2	Cloud Application Architectures	George Reese	First Edition 2009	O'Reilly Media, Inc, Kolkatta
3	Distributed and Cloud Computing, From Parallel Processing to the Internet of	Michael Miller	First Edition 2009.	QUE Publishing, Bangalore
4	Distributed and Cloud Computing, From Parallel Processing to the Internet of	Kai Hwang, Geoffrey C Fox, Jack G Dongarra	First Edition 2012	Morgan Kaufmann Publishers, New Delhi
5	Cloud Computing: Implementation, Management, and Security	John W.Rittinghouse and James F.Ransome	First Edition 2010	CRC Press, New Delhi


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